Predication and Information Structure

A Dynamic Account of Hungarian Pre-verbal Syntax

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Abstract

Hungarian 'focus position' is typically thought of as a central example of a 'discourse configurational' phenomenon, since it not only involves the expression of information-structural (or 'discourse semantic') meaning through the manipulation of word order but also interacts syntactically with other elements of the sentence. In this thesis, I argue that this kind of phenomenon highlights fundamental theoretical problems with conventional assumptions about the relationships between linguistic form and different kinds of meaning and demonstrate that these problems have led to empirical inadequacies in the syntactic analysis of Hungarian.

I propose an alternative analysis that makes use of a dynamic, incremental parsing-based approach to grammar, which in turn allows for the influence of inferential pragmatic operations (investigated in terms of Relevance Theory) at all stages in the process of interpreting linguistic form. This opens up possibilities of structural and interpretive underspecification that allow for the interpretation of the 'focus position' to be unified with the information-structural interpretation of sentences that do not contain a syntactically focused expression. This analysis explains the interaction of syntactic foci with other pre-verbal items. The burden of explanation is thus shifted away from specialised, abstract syntactic representations and onto independently necessary aspects of cognitive organisation.

The use of 'discourse semantic' primitives—whether in terms of focus or exhaustivity—to encode the effects of the 'focus position' is shown to be both theoretically problematic and empirically inadequate. The information-structural meanings associated with the position must be viewed not as the input to interpretive processes but instead as the result of inferential processes performed in context. Reanalysis of the syntactic evidence shows the relevant position to be not merely pre-verbal, but underlyingly pre-tense, showing that the unmarked position of the main verb is essentially the same as that of syntactically focused expressions. This leads to an

analysis whereby both 'neutral', topic-comment readings and cases of narrow focus emerge from inferences over a common interpretive procedure.

This procedure is identified as 'main predication': the point in the parsing of a sentence at which the application of a single predicate effects the conversion of a mere description of an event into a truth-conditional assertion. Main predication is represented using neo-Davidsonian, event-based semantics (the effect of the main predicate being equivalent to that of the application of an existential quantifier over an event variable in the neo-Davidsonian approach) and made dynamic by the use of the epsilon calculus.

This analysis predicts the postposing of any (otherwise pre-tense) 'verbal modifier' (VM) in the presence of a syntactic focus and the apparent information-structural ambiguity of VMs when they are pre-tense. Certain constraints on the distribution of quantifiers are also predicted, one such constraint being adequately characterisable only within a semantically underspecified, procedural account. The behaviour of the negative particle *nem* is also given a maximally simple explanation. The apparently variable scope of the negative operator is explicable without ad hoc syntactic mechanisms: the apparent wide scope reading associated with 'sentential' negation follows inferentially from narrow scope negation of temporal information. The syntactic positions of negation are predictable on this basis. In addition, the assumption of consistent narrow scope negation correctly predicts that VMs must postpose or receive a narrow focus reading in the presence of *nem*.

Declaration

I hereby declare that this thesis is of my own composition, and that it contains no material previously submitted for the award of any other degree. The work reported in this thesis has been executed by myself, except where due acknowledgement is made in the text.

Daniel John Wedgwood

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months and got this thesis done in time. I suspect I wouldn't have. The same goes for my mother, without whose generosity I'd never have been able to concentrate on this thesis properly over the past year and without whose support it would have all been much more difficult.

Contents

Chapter 1

Hungarian Pre-verbal Phenomena and Static Syntactic Analysis

1.1 Introduction

As is well-known, word order in Hungarian, a language with rich case morphology, tends to signal discourse-related meanings rather than grammatical relations. This aspect of the language has received considerable attention within theoretical linguistics and many proposals have been put forward to characterise the syntactic and semantic properties that lie behind the observed variation in order and interpretation (see É. Kiss 1987,2002; Kiefer & É. Kiss 1994; Puskas 2000; Bende-Farkas 2002 for thorough overviews). Indeed, Hungarian has become one of the best studied, within mainstream generative syntactic frameworks, of what were once thought of as 'free word order' languages (as evidenced by the dominance of work on Hungarian in major collections dealing with the phenomenon, such as Abraham & de Meij 1986; É. Kiss).

The basic linear template of a simple Hungarian sentence is given in (1.1) (whose basic form is attributable to É. Kiss 1987). As usual, parentheses indicate optionality and the Kleene star indicates that the phrase may appear zero or more times[1].

[1] I omit here one arguably distinct position, which has no direct connection to my concerns: the sentence-initial position of an optional 'contrastive topic', which is distinguished from other topics by rising intonation and a narrow scope reading. For a detailed analysis of these, see Gyuris (2002).

An example with each possible position in this template instantiated is given in (1.2)[2]

(1.1) (T[opic]P*) (Q[uantifier]P*) (Focus) V (XP*)

(1.2) Péter 'mindenkinek a 'bulira küldött egy meghívót.
Péter everyone-DAT the party-for sent an invitation-ACC
'It's the party that Péter sent everyone an invitation for.'

This thesis explores one particular, internally complex, part of this sentential domain: the so-called 'focus position' and associated syntactic phenomena. As shown in (1.1), this occurs immediately to the left of the tensed verb, hence the reference to 'pre-verbal syntax' in the title of this thesis. Although reference will be made to other linearly pre-verbal positions in the course of this work, the analysis of these (so-called) Topic and Quantifier positions lies mostly outside its scope.

Within the theoretical literature, a common approach to the analysis of discourse-related meaning is to postulate specialised syntactic projections to which expressions move—an idea that to a certain extent has spread from the literature on Hungarian to the analysis of other languages (É. Kiss ; Rizzi 1997). Hence, the majority of recent analyses postulate Topic and Focus projections that host expressions interpreted as topics and foci (see É. Kiss 2002). The 'focus position' of Hungarian provides, on the face of it, particularly strong evidence for the need to employ this 'discourse configurational' approach, rather than an approach that seeks to derive discourse-related meaning from the cognitive impact of different linear orderings (as in Downing & Noonan 1995, for example), since focused expressions syntactically interact in precise ways with the distribution of numerous other items, which apparently have no direct information-structural significance, but bear complex relationships to other facets of meaning, such as negation, aspect and quantification. This leads to assumption that abstract, hierarchical syntactic representations must lie behind the template in (1.1).

The most important versions of this kind of approach to Hungarian are reviewed in this chapter, but the thesis goes on to argue against the theoretical assumptions

[2]An inverted comma is used to indicate a pitch accent on the following word; a convention common in the Hungarian literature, which I will employ only when prosody is germane to the discussion at hand). According to Rosenthall (1992), topics do carry a kind of pitch accent, but this is distinct from those elsewhere in the sentence and in any case never affects the points that I argue, so I do not mark it in this way.

that underpin such analyses and to demonstrate that static syntactic representations are neither necessary nor sufficient to deal with the phenomena surrounding the 'focus position'. It is argued in detail in Chapters 2 and 3 that a meaning such as 'focus', of the kind applicable to the Hungarian 'focus position' cannot be defined *a priori* and encapsulated as a grammatical primitive. Instead, the interpretation of some expression as focus is of necessity something that emerges dynamically in context. Chapter 2 suggests that for independent, largely metatheoretical, reasons, a dynamic approach to linguistic analysis should be preferred to one in which grammatical phenomena are related to meanings via static and highly abstract syntactic representations. Here the necessary inferential pragmatic concepts are also introduced to allow for the analysis of 'focus' interpretation in Chapter 3.

The question of how the strict but complex relationship between word order and interpretation is to be explained without abstract syntactic positions or the commonly assumed semantic primitives is the topic of Chapters 4–7. Here, a solution is proposed that utilises procedural information to build up semantic representations. This not only explains how the appropriate 'focus position' reading comes about and how it relates to the information-structural reading of sentences that do not appear to feature syntactic focusing, but also accounts without further stipulation for a number of other facts of syntactic distribution and associated interpretations. Chapter 4 shows how a procedural approach to constraints on pre-verbal quantifier distribution due to Szabolcsi (1997b) can be extended in a fashion that not only brings together these constraints and the interpretation of focused expressions but also provides more precise empirical predictions. In Chapter 5, the relevant procedural notion is refined and the role of the tensed verb in the syntax of focusing is given a simple but highly significant reanalysis. A system of representation is then developed that shows the connection between the unmarked position of main verbs and focused expressions, via a procedure that is associated with the position of tense. This constitutes a dynamicisation of neo-Davidsonian event-based semantic representations, involving the introduction of the epsilon operator of Hilbert & Bernays (1939). Chapters 6 and 7 show how this approach accounts for the phenomena most commonly thought of as necessitating the postulation of abstract syntactic operations: the complex syntactic interaction of focused expressions with a diverse class of 'verbal modifiers' and with negation. Constraints on the distribution of these elements are shown to follow from the analysis proposed in Chapter 5, given a single additional assumption, in the form of a maximally simple analysis of the negative particle *nem*.

First, in the remainder of this chapter, the necessary background is put in place, with a brief overview of the key data and a review of the most significant attempts to deal with these by conventional syntactic means.

1.2 The data

1.2.1 Immediately pre-verbal position

Occupancy of the positions in (1.1) (repeated here as (1.3)) is not typically constrained according to grammatical relations or thematic roles (notwithstanding the restricted syntactic behaviour of the internal arguments of certain classes of verb, which can be shown to result indirectly from a complex of factors); instead the richly case-marked phrases of Hungarian are mostly able to surface in any of these positions, subject to other kinds of interpretive constraint.

(1.3) (T[opic]P*) (Q[uantifier]P*) (Focus) V (XP*)

For example, É. Kiss (1987) identifies the necessarily specific interpretation of expressions found in the Topic position, which relates intuitively to their 'topicality' and sentence-initial position, in the sense of being the starting point of an utterance and logical subject of some subsequent predicative material. The so-called Quantifier Position does not in fact host only quantifiers, though it is most commonly associated with a certain class of quantified NP, for some of which this is the only possible pre-verbal position (see example (1.7) below and Chapter 4). To some extent, this should probably not be analysed as a single position at all, in any significant sense. It may host either topic-like logical subject material or material that is part of the 'comment' of a 'topic-comment' sentence and it is only structurally definable in contradistinction to the Topic and Focus positions: phrases associated with this position will always follow a necessarily sentence-initial topic element (such as a specific indefinite topic) and precede the Focus position. If the sentence contains no focused expression in the Focus position, an item in the Quantifier Position will appear immediately preceding the verb, but will be prosodically distinguished from a focused expression by the fact that the verb in this case will carry a pitch accent, whereas it does not when it follows an expression in Focus (as (1.2) shows).

This work concentrates is the position called Focus in (1.3). For the time being, I shall take this to be truly a 'focus position' and describe this use of the immediately

pre-verbal slot, though a number of its distinguishing features are true also of various other items that do not prompt the characteristic focused reading, as I show below. For this reason, I adopt hereafter the neutral label 'PV' (for 'pre-verbal') instead of 'Focus'. The PV position has a number of features that distinguish it from the other non-verbal positions. For one thing, it is notably the only non-verbal position in (1.1) that can be filled only once per sentence. This is not unconnected to its distinctive relationship to the tensed verb: an expression in this position is always strictly adjacent to the verb[3]. The strictness of this relationship is shown particularly starkly in sentences with the future auxiliary *fog*. In what tends to be called a 'neutral sentence'—one that contains no pre-verbal focus or negation—the infinitive of a simple verb like *lát* 'see' precedes the auxiliary, with an unmarked reading, as in (1.4a). Yet even this, the contentful part of the main verbal predicate, cannot intervene between a focused expression and the tensed auxiliary, being forced into a post-verbal position in the presence of a focused expression, as (1.4b,c) show[4].

(1.4) a. Mari látni fogja Jánost.
Mari see-INF will János-ACC
'Mari will see János.'

b. Mari a ′távcsővel fogja {látni Jánost / Jánost látni}.
Mari the binoculars-WITH will see-INF JánosACC János-ACC see-INF
'It's with the binoculars that Mari will see János.'

c. *Mari a ′távcsővel látni fogja Jánost.
Mari the binoculars-WITH see-INF will János-ACC
Intended: 'It's with the binoculars that Mari will see János.'

In addition, a syntactically focused expression enters into a compound-like relationship with the verb on a prosodic level, by carrying a pitch accent and always preceding a destressed verb (making focus+V analysable as a phonological word). Indeed, all post-focus material is typically devoid of independent pitch accents (hence the pitch accent carried by a focused expression has been called 'eradicating stress'; see Kálmán 1985b), though non-verbal material may on occasion bear an accent

[3]The are two items that could be said to intervene between an item that is in other ways recognisably in this position and the tensed verb. These are the negative particle *nem*, whose distribution is accounted for in Chapter 7, and the 'emphatic' particle *is*, meaning roughly 'also,even'. The latter appears to be able to encliticise to practically any expression and thus can be seen as part of the immediately pre-verbal expression, rather than truly intervening between it and the verb. As such, the behaviour of *is* is not immediately relevant to any of my major concerns and it is not analysed further in this thesis.

[4]The considerable significance of such data in ways hitherto ignored is discussed in Chapter 5.

after a focused expression. This is intuitively closely connected to the information-structural interpretation of this material, which is always presupposed (in a sense to be outlined in Chapter 3) in contrast to the asserted focus.

Prosody is thus one major indicator that an expression is in the PV position, rather than any other linearly pre-verbal slot. Often there is another diagnostic available, since there is a family of items that (in parallel to the infinitive in (1.4)) unmarkedly appear before the verb in a 'neutral' sentence, but postpose in the presence of a focused expression in PV. These items can be given the generic term 'verbal modifier' (henceforth VM). (1.5), which involves a so-called 'verbal prefix' VM (shown in bold in these examples), illustrates how VMs obligatorily postpose in the presence of either a focused expression or sentential negation[5].

(1.5) a. Kati **meg**evett egy almát.
Kati VM-ate an apple-ACC
'Kati ate an apple (up).'

b. Kati evett **meg** egy almát.
Kati ate VM an apple-ACC
'It's Kati who ate an apple (up).'

c. Kati (***meg**)evett egy almát.
Kati VM-ate an apple-ACC
Intended: 'It's Kati who ate an apple (up).'

d. Kati nem evett **meg** egy almát.
Kati not ate VM an apple-ACC
'Kati didn't eat (up) an apple.'

e. Kati nem (***meg**)evett egy almát.
Kati not VM-ate an apple-ACC
Intended: 'Kati didn't eat (up) an apple.'

Like foci, pre-verbal VMs cannot be separated from the verb by anything other than the negative particle *nem* or the enclitic *is* 'even,also'. They also bear a pitch accent and precede a destressed verb. They do not cause the destressing of post-verbal

[5]To avoid the complex issue of the precise contribution of the prefix *meg*, I gloss it only as 'VM'. I also indicate the VM status of non-prefix VMs in glosses, where this is significant to the point of the example (see below). As the English translations indicate, a prefix-bearing verb in Hungarian is often less marked than an English verb-particle combination, being translatable with the bare verb or with the particle added, according to context.

material, but this is unsurprising, since post-verbal material is not presupposed in these cases—typically, VMs appear pre-verbally in 'neutral' sentences, which are 'topic-comment', in information-structural terms.

The impression given by this kind of data is of the existence of a single pre-verbal position for which foci, the negative particle and VMs 'compete', the information-structural reading of a sentence depending on the kind of expression found in this position. Henceforth, this position will be termed 'PV' (for 'pre-verbal'). For the time being, this can be considered a mere expository notion, describing a superficial relationship between various items and the tensed verb—in conventional syntactic accounts this relates to richer underlying structure (see below)—though in Chapters 3–7, I will defend a unified view of the immediately pre-verbal position as the correct theoretical analysis. On the basis of this initial syntactic characterisation, the major kinds of VM can be identified. These are outlined, along with some of their significant properties, in section 1.2.3.

Most kinds of expression can undergo syntactic focusing, including sub-phrasal items. If an item from within a noun phrase is focused, the whole noun phrase appears in the PV position and stress is shifted within this to indicate the item in focus, as in (1.6).

(1.6) Péter egy használt ′autót vett.
Péter a used car-ACC bought
'It's a used CAR that Peter bought [not a used caravan, for example].'

Certain quantifiers cannot be syntactically focused, however. For example, a universal quantifier cannot appear in the PV position even to force a contrastive focus reading, as (1.7) shows.

(1.7) a. Minden gyerek **meg**ijedt / *ijedt meg.
every child VM-feared feared VM
'Every child got frightened.'

b. ′Minden gyerek **meg**ijedt, nem csak a lányok.
every child VM-feared not only the girls
'EVERY child got frightened; not just the girls.'

c. *′Minden gyerek ijedt **meg**, nem csak a lányok.
every child feared VM not only the girls
Intended: 'EVERY child got frightened; not just the girls.'

This constraint is illustrated in more detail and analysed in Chapter 4.

1.2.2 The interpretation of focus

As the examples above show, the interpretation commonly associated with syntactically focused expressions is roughly comparable to an English *it*-cleft construction. Considerable effort has been put into characterising this interpretation in precise truth-conditional semantic terms in the literature on Hungarian, on the grounds that such a characterisation would indicate the contribution of the use of the focus position to the meaning of sentences in which it plays a part—in other words, what is syntactically encoded in this position[6]. For reasons presented in Chapters 2 and Chapters 3, I reject this methodology. Nevertheless, it is worthwhile here to note the semantic consensus, in order to appreciate just what is to be explained.

Despite the usual reference to a 'focus position', practically all analysts accept the line summed up by É. Kiss (2002:77) as follows: "Semantically, the focus is more than merely non-presupposed information; it expresses exhaustive identification from among a set of alternatives". The precise meaning of 'exhaustive identification' varies slightly according to different semantic characterisations, but it is generally accepted that syntactic focus encodes the fact that the focused expression denotes a proper subset of a (contextually given) set of possible occupants of a certain slot in the propositional translation of the sentence, and that this is the *only* subset of this set that can fill this slot and make the proposition true (a formulation derived from Szabolcsi 1994).

Various tests have been proposed to distinguish this 'exhaustive' reading from other forms of assertion. One test, discussed in Chapter 3, is due to Szabolcsi (1981). This involves the logical incompatibility of an exhaustively interpreted reference to an individual and co-ordination of that individual and another. Hence, the fact that (1.8) is a felicitous utterance, rather than a logical contradiction, is taken to show that a special, exhaustive form of focus is at work.

(1.8) Nem 'Péter aludt a padlón, hanem 'Péter és Pál.
not Péter slept the floor-on but Péter and Pál
'It wasn't Péter who slept on the floor; it was Péter and Pál.'

[6]For example, Szabolcsi (1981,1983,1994), Kenesei (1986), É. Kiss (1998a), Vallduví & Vilkuna (1998).

A similar test (reported by É. Kiss 2002 and attributed to Donka Farkas) is illustrated in (1.9).

(1.9) a. János ′Pétert mutatta **be** Marinak.
János Péter-ACC showed in(VM) Mari-DAT
'It's Péter that János introduced to Mari.'

b. Nem, ′Zoltánt is.
no Zoltán-ACC also
'No, he also introduced Zoltán to her.'

The fact that adding a further individual is introduced to the dialogue as a contradiction to the original statement (1.9a) (i.e. by using *nem* 'no') shows that the original statement is taken to exhaustively identify the people introduced to Mari by János[7]. This contrasts with the infelicity of such a reply when PV focus is not employed, as shown in (1.10).

(1.10) a. János **be**mutatta Marinak Pétert .
János in(VM)-showed Mari-DAT Péter-ACC
'János introduced Péter to Mari.'

b. #Nem, ′Zoltánt is.
no Zoltán-ACC also
'No, he also introduced Zoltán to her.'

As discussed in Chapter 3, much has been made of the fact that PV focus can in this way affect the logical relations between sentences and hence can be seen as a truth-conditional aspect of meaning. This is assumed by many analysts to necessitate the encoding of exhaustive focus; an assumption that is shown to be groundless from a dynamic perspective.

The association of syntactic focusing with this specific interpretation has led to the more general claim that languages encode two distinct kinds of focus: one the 'merely non-presupposed' kind and one the logical, exhaustive kind. These may be associated with separate syntactic features (É. Kiss 1998a) or 'information packaging' procedures (Vallduví & Vilkuna 1998). This approach fails to consider that pragmatic factors may determine the two readings, leaving a common underlying

[7] I have not found this use of *nem* ... *is* to be consistently licensed by PV focus for all speakers in all contexts, however.

notion of focus. That non-presupposed status is not sufficient to trigger syntactic focusing is undeniably true: after all, the stress-bearing post-topical material in a 'neutral' sentence is newly asserted, not presupposed[8]. The idea of encoded exhaustive focus, on the other hand, is rejected in Chapter 3.

1.2.3 Verbal modifiers

Central cases

Recall from section 1.2.1 that there are certain items that may appear in the Hungarian sentence, the so-called verbal modifiers (VMs), which unmarkedly occupy an immediately pre-verbal position, but postpose in the presence of a pre-verbal focused expression or negation. A diverse set of expressions shows this syntactic behaviour and therefore a wide variety of expressions may be thought of as VMs. This variety causes problems for many an analysis: there is no obvious way to link the common syntactic behaviour of all the VMs to a single interpretive feature (see É. Kiss to appear for a detailed presentation of the considerable semantic diversity of only a subset of the VMs).

The verbal prefixes are the most frequently discussed kind of VM. The majority of these have directional meanings, though this does not suffice to characterise the whole class. For one thing, even these prefixes frequently appear in semantically opaque combinations, such as *beolvas* (lit. 'in-read') 'tell off', *feltesz* (lit. 'up-put') 'assume', *berúg* (lit. 'in-kick') 'get drunk' (in this respect, they parallel the contribution of English directional particles to 'complex verbs' such as *let down* 'disappoint', *take off* 'imitate', *put out* 'inconvenience'). There are also prefixes that are associated with no such directional or locative meaning, at least in a non-figurative sense, a common example being *meg*, which is generally simply described as a 'perfectivising' or 'telicising' prefix (if any underlying conceptual semantic content can be given to *meg* at all, it is necessarily highly underspecified, perhaps best approximated as 'to completion').

Other kinds of VM include bare (i.e. determinerless) nominals in various cases, case-marked adjectives acting as resultative secondary predicates, and locative full NPs in certain contexts. A selection of these is illustrated in (1.11)–(1.13). These all follow the syntactic pattern illustrated in (1.5) (it is simply a convention of

[8] One recent analysis nevertheless attempts to reunite the two at an abstract level of syntax: Puskas (2000) proposes that all new information moves into FP, often as the result of a series of complex and string-vacuous movements. This is difficult to reconcile with the encoding of exhaustive identification in a special focus feature, which Puskas also claims to adopt.

Hungarian orthography to write prefix+V combinations as a single word, while leaving other VMs separate from the verb—although this does serve to emphasise the 'complex predicate' nature of VM+V combinations; see below).

(1.11) accusative bare nominal:

a. Pisti levelet írt.
Pisti letter-ACC wrote
'Pisti wrote a letter.'

b. Pisti írt levelet.
Pisti wrote letter-ACC
'It's Pisti who wrote a letter.'

(1.12) resultative case-marked adjective:

a. Ferenc pirosra festette a kerítést.
Ferenc red-to painted the fence-ACC
'Ferenc painted the fence red.'

b. Ferenc a kerítést festette pirosra.
Ferenc the fence-ACC painted red-to
'It's the fence that Ferenc painted red.'

(1.13) locative:

a. Péter a szobában maradt.
Péter the room-in stayed
'Péter stayed in the room.'

b. Péter maradt a szobában.
Péter stayed the room-in
'It's Péter who stayed in the room.'

The word order of the (a) examples, with the VM in PV, is typically associated with 'neutral' sentences, meaning that the interpretation is of a 'topic-comment' kind (that is, with the VM and all subsequent material together creating a broad 'comment' of newly asserted material), and that post-verbal material is correspondingly stress-bearing. It should be noted that the same word order can in fact be used to create contrastive focus on the content of the VM itself, if post-verbal material is destressed. For exemplification of this and discussion of some putative theoretical implications, see section 1.3.1, below.

The more significant general observation, however, is that VMs tend to have a non-focused interpretation while maintaining apparently the same structural relationship to the verb as that held by syntactically focused expressions. Indeed, not only are VMs able to appear in PV on an unmarked reading; they must. The post-verbal appearance of a VM always prompts some form of marked reading, even in the absence of an explicit focused expression or negation in PV (where this is possible at all). Two principle kinds of reading are associated with this word order, depending on prosody, as demonstrated in (1.14). (1.14a) is thought of as a progressivising construction, given the normally perfective interpretation of prefixed verbs, while (1.14b), with all post-verbal material destressed, is usually termed the 'existential' or 'evidential' reading, and is also usually described as an aspectual construction (though this is shown to be inappropriate in Chapter 7, section 7.2).

(1.14) a. János ′nyitotta ′**ki** az ′autoját, amikor ′odaérkeztem.
János opened out(VM) the car-his-ACC when there-arrived.1SG
'János was opening his car when I got there.'

b. János ′nyitotta **ki** az autoját kulcs nélkül.
János opened out the car-his-ACC key without
'János has opened his car without a key before.'

These constructions have in the past been analysed as involving silent VM-like or focus-like operators in the PV position, to account for the post-verbal appearance of the overt VM. In Chapter 7, I will show that no such elements are required to explain either the form or interpretation of such sentences, which follow from the dynamic analysis of PV effects that I develop in Chapters 5 and 6.

Intuitively, the distribution of VMs—in particular their adjacency to the verb in 'neutral' sentences—is related to their forming complex predicates of various kinds when in combination with lexical verbs. The non-compositional meanings associated with some VM+V combinations are one indicator of this, as is the fact that a VM+V combination may have a different argument structure to that of the same lexical verb appearing on its own. For example, É. Kiss (2002:56) notes that *olvas* 'read' is intransitive or transitive, whereas *elolvas* (lit. 'away-read') 'read, finish reading' and *átolvas* (lit. 'across-read') 'read through, skim' are obligatorily transitive, and the non-compositional *beolvas* (lit. 'in-read') 'tell off' takes a dative argument. VM+V complexes can also be the input to morphological processes, creating words like *feltétel* 'assumption', from *feltesz* (lit. 'up-put') 'assume' (see É. Kiss 1987, 65 for a parallel example with a bare nominal VM). Evidence of a

syntactic nature comes from co-ordination: as Bende-Farkas (2002) notes, examples like (1.15) (presented by É. Kiss 2002, 60 for different reasons), which shows that a prefix VM cannot 'scope' over co-ordination, can be taken as evidence for the complex predicate nature of the VM+V combination.

(1.15) a. * János **fel**hívta Marit és olvasta neki a versét.
János up(VM)-called Mari-ACC and read her.DAT the poem-3SG-ACC
Intended: 'János called Mari and read out his poem to her.'

b. János **fel**hívta Marit és **fel**olvasta neki a versét.
János up(VM)-called Mari-ACC and up(VM)-read her.DAT the poem-3SG-ACC
'János called Mari and read out his poem to her.'

The fact that a VM seems to form a unit with the accompanying verb yet is syntactically separable from it is thought of as "a notoriously difficult problem of describing Hungarian syntax" (É. Kiss 2002:56). Meanwhile, the fact that it is the presence of apparently unrelated elements like negation and foci that cause this separation seemingly gives support to the assumption that this must be accounted for in terms of abstract syntactic structure. In Chapters 5–7 it is shown that this situation is in fact predicted by an analysis based entirely in processes of interpretation (although the precise mechanisms involved in different kinds of complex predicate formation remain to be worked out).

Other PV elements

In addition to the clear VM items shown in (1.11)–(1.13), certain adverbs show VM-like behaviour, in requiring to be in PV, without necessarily showing a clearly contrastive reading. On the other hand, these may co-occur with other VMs, which are consequently postposed. These adverbs typically have some form of negative meaning, in a broad sense (they include *alig* 'hardly', *hasztalan* 'in vain', *rosszul* 'badly'); (1.16) gives an example.

(1.16) a. * János rosszul **meg**oldotta a házi feladatot.
János badly VM-solved the home assignment

b. János rosszul oldotta **meg** a házi feladatot.
János badly solved VM the home assignment
'János did the homework wrong.'

Some other adverbs appear either in PV or the 'Quantifier Position', but show a reading in PV that is unavailable in the latter, as shown in (1.17).

(1.17) a. Az őr részegen **le**csukta a foglyokat.
the guard drunkenly down(VM)-shut the prisoners-ACC
'The guard locked up the prisoners (while he was) drunk.'

b. Az őr részegen csukta **le** a foglyokat.
the guard drunkenly shut down(VM) the prisoners-ACC
'The guard locked up the prisoners (while he was) drunk.'
or:
'The guard locked up the prisoners (while they were) drunk.'

The relationship of adverbs to PV is discussed in more detail in Chapter 6, section 6.4.2.

Another class of expression that occupies PV, causing the postposing of any VM, is that of question words (i.e. the equivalents of the English *Wh*-words). As it is not my aim in this thesis to analyse the interpretation of questions, I simply assume for present purposes that these question words are a sub-species of focus and do not discuss them further in their own right. Though a simplifying assumption, this is essentially in line with the view of focus developed in later chapters (see also Tsiplakou 1998 for a dynamic analysis of Greek that reaches this conclusion about question words).

Another class of expressions sometimes claimed in the literature to be distinct from foci though found in PV involves certain quantified noun phrases; in particular, those featuring modified numerals, such as *kevesebb, mint hat N* 'fewer than six N'. However, these cases are shown in Wedgwood (2002) and in Chapter 4 of this thesis to be also simply a sub-type of focus, once the interpretation of foci is analysed appropriately.

1.3 The focus position: syntactic analyses

1.3.1 'Single position' analyses

The traditional grammar view of Hungarian characterised it as having 'free word order', on account of there existing grammatical sentences with all possible permutations of subject, verb and object, on one reading or another (see É. Kiss 1987,

17 for references). Early generative analyses (e.g. Horvath 1981, É. Kiss 1987), breaking with this view, were instrumental in developing the notion of 'discourse configurationality': the idea that at least some languages in which word order is relatively free with respect to the signalling of grammatical relations have fixed syntactic positions whose inhabitants must bear a certain feature that corresponds to some aspect of discourse-related meaning (É. Kiss).

É. Kiss's consistent position, for example, has been that the Hungarian VP has a flat structure, while hierarchical structure is projected above the VP, including distinguished positions for topic and focus, and a number of other functional projections, to which elements from within the VP may move. É. Kiss's earlier (1987, 1994) work exemplifies what has been termed a 'single position' analysis of focus and VMs. That is, it follows the intuition described above, that foci, negation and VMs appear to compete for the immediately pre-verbal position that I have been calling PV. This is also supported by the observation of Jo (1995) that the kind of items that have the status of VMs in Hungarian are known to interact with the position of syntactically focused expressions in a variety of other languages[9]. É. Kiss's approach within this work is perhaps the closest within the syntactic literature to the one that I develop within a dynamic approach in the later chapters of this thesis. Though 'single position' approaches are now generally considered untenable by syntacticians, the evidence cited against them (see below) depends upon the assumptions of conventional syntactic frameworks, and is thus irrelevant to my approach.

É. Kiss (1994) identifies the crucial pre-verbal position as Spec,VP. The motivations for movement to this position are somewhat mixed. The primary one is the VP is said to be inherently associated with a feature [+F(ocus)] (which É. Kiss links to the VP being the logical predicate of the sentence—an idea that in some ways prefigures the arguments of Chapter 5 of the present work). É. Kiss's (1994) explanation of why VMs typically get a different (i.e. non-exhaustive) interpretation to other expressions in PV is interesting from my perspective, since it is essentially an inferential pragmatic account. Exhaustivity is said to result from applying the [+F] interpretation to an expression that denotes an individual entity, whereas a

[9]Jo's own analysis of this involves postulating a feature that can switch between two values, [+focus] and [+pred.comp_] (for 'predicate complement') according to the kind of expression that is to appear there; a technical innovation that is of little explanatory value within the terms of syntactic theory, but which is interesting in the context of the present work for its underlying mechanism of the resolution of underspecification by online inferential processes.

the effect of this feature on a non-entity is simply 'identification'. VMs being neither entity-denoters nor, in an important sense, semantically independent of the verb, the effect of a VM occupying Spec,VP is to produce non-exhaustive focus on the VM+V combination. The context of utterance may still force an 'individuated' reading of the VM, however, by setting it into contrast with the semantics of other VMs, hence the possibility of also getting a contrastive focus reading from a pre-verbal VM.

Many aspects of this account re-emerge in the analysis developed in the present work: notably, the determination of exhaustivity by context, not stipulation; and the linking of the location of the focus position to the reading of VM+V complexes (and VM-less verbs in sentences without PV foci) as the beginning of the focused part of the sentence (broadly construed; i.e. the 'comment'), which is linked in turn to the notion of predication. There are problems with É. Kiss's technical implementation of this, however. Above all, it is not clear why the prosody and interpretation of post-verbal constituents should be different when different expressions occupy Spec,VP: the explanation of the interpretation of [+V] VMs suggests that the VM+V complex should be interpreted as parallel to a focused individual, which would leave all post-verbal material destressed and presupposed. In fact, post-verbal material is stressed and 'in focus' in most sentences containing VMs in PV. It is also unclear precisely how the VM percolates its [+F] marking to the main verb with which it forms a complex predicate in a sentence containing an auxiliary, such as (1.18), in which the main verb is an infinitive with a variable post-auxiliary position, yet the VM still appears before the tensed verb (cf. (1.4), above).

(1.18) János **fel** fogja {olvasni a verseit / a verseit olvasni}.
János up(VM) will read-INF the poems.3SG-ACC the poems.3SG-ACC read-INF
'János will read out his poems.'

Furthermore, É. Kiss (1994) relies on alternative or auxiliary explanations for the PV appearance of certain other expressions. Certain items, such as some 'negative' quantifiers and adverbs, are said to bear no [+F] feature, but rather to move to Spec,VP to take scope over the VP (an idea that clearly cannot carry over into a Minimalist analysis)[10]. The picture is further complicated by the notion that verbal prefixes are in fact also analysed as aspectual operators that have to be in Spec,VP to take the appropriate scope. Since focus itself is referred to as taking scope and

[10]Note that more recent approaches, involving encoded exhaustivity, are no better equipped to deal with this kind of PV item, which can only be declared to be inherently [+Focus], in a syntactic sense, without producing the expected reading; see É. Kiss (2002:90), for example.

possibly being an operator, Spec,VP appears to be in some sense an all-purpose 'operator position'—an idea that is proposed more explicitly in É. Kiss (1987:52). The problem then becomes the basis on which different items should be declared to have 'operator' status: this begins to seems quite *ad hoc*, if all the different classes of VMs are to be included, while the explanation appears fragmented if not.

Whatever the virtues or problems to be found in the particular proposals of É. Kiss (1987, 1994), the whole idea of 'single position' analyses has since come in for other criticisms, which have led to the total abandonment of this approach in recent years by generative syntacticians. Farkas (1986) noted various objections early on; Piñón (1992) adds others.

Among these are the simple fact that under a 'single position' analysis the position in question does not appear to relate to a consistent semantic interpretation of the kind that fits neatly into a fully compositional view of the syntax-semantics interface. Though in principle there is no *a priori* reason to expect this kind of invariant interpretation for each syntactic position, this is a more or less implicit assumption of most generative work (see Chapter 2), notwithstanding the kind of reasoning employed in É. Kiss's earlier analyses, as described above. The impulse to marry each syntactic position with a single truth-conditional semantic contribution to the final interpretation of the sentence has had a profound influence on recent linguistic analysis, being a major justification for the postulation of numerous abstract functional projections—perhaps rather ironically, given the doctrine of the autonomy of syntax to which mainstream syntactic theory still ostensibly adheres. It has clearly affected the course of the 'discourse configurational' approach to languages like Hungarian, imposing a certain view on the relationship between syntax, semantics and pragmatics. It is one of the major purposes of this thesis to call this assumption into question and to pursue an alternative line of reasoning regarding the encoding of meaning in linguistic structure.

Other challenges to 'single position' analyses of PV phenomena are more straightforwardly syntactic. Farkas (1986) concentrates in particular on evidence from co-ordination. As shown above in (1.15), a structure containing a VM cannot involve co-ordination of the kind *[VM [[V XP] *and* [V XP]]]. Co-ordinating the VM+V combination, as in [[[VM V] *and* [VM V]] XP], is possible, in line with the idea that the VM+V combination is in some sense a complex predicate—an example is shown in (1.19a). On the other hand, a pre-verbal focus can 'take scope' over a co-ordination, allowing the structure disallowed with VMs, [focus [[V XP] *and* [V XP]]], as in (1.19b).

(1.19) a. János [**össze**szedte és **össze**rakta] a széttépett levelet.
János together(VM)-picked and together(VM)-pieced the torn.up letter-ACC
'János collected and pieced together the torn up letter.'

b. János a Mari levelét [tépta **szét** tegnap este és rakta
János the Mari letter-3SG-ACC tore up(VM) yesterday evening and pieced
össze ma reggel].
together(VM) today morning
'It's Mari's letter that János tore up last night and pieced together this morning.'

Facts from ellipsis, as in (1.20), have similar implications.

(1.20) a. *János nem sokáig [tanulta a verset]$_i$, de meg e_i
János not long learned the poemACC but VM
Intended: (??)'János hasn't been learning the poem long but he has [i.e. learned it].'

b. Nem 'János [tudja a verset]$_i$, hanem 'Péter e_i
not János knows the poem but Péter
'It's not János who knows the poem, but Péter.'

In mainstream syntactic theory this must be taken as evidence for different syntactic structures and therefore most likely for a difference in the pre-verbal positions of foci and VMs. Note, however, that complex predicate formation is a semantic operation as well as syntactic (though in precisely what sense and to what extent either of these is true must be open to debate). The reasons why (1.15a) and (1.20a) are ruled out need not be purely a matter of abstract syntactic structure, therefore. It is worth noting in this regard that the English translations of (1.20a,b) differ in acceptability/grammaticality in parallel with the Hungarian grammaticality judgements, even though English clearly does not feature the same syntactic configurations (while the examples are due to É. Kiss 2002, the judgement on the English translation is my own—and if anything is understated).

Piñón (1992) sees the ability to contrastively focus VMs, as in (1.21b), as an argument against the 'single position' approach. Again, this implicitly rests upon the assumption that all syntactic positions must relate to an invariant truth-conditional aspect of the overall interpretation of a sentence, the argument being that the VM in (1.21b) must be in different position to that in (1.21a) in order to account for its

different information-structural interpretation (note that the argument from ellipsis would apply here too).

(1.21) a. Mari ′**fel**ment a ′lépcsőn.
Mari up(VM)-went the stair-on
'Mari went up the stairs.'

b. Mari ′**fel**ment a lépcsőn, nem '**le**.
Mari up(VM)-went the stair-on not down(VM)
'Mari went UP the stairs, not DOWN them.'

Piñón also emphasises that in any case not all PV items can be viewed as 'competing' with each other for a single underlying syntactic position. Negation, like foci, causes VMs to postpose, yet the negative particle *nem* can co-occur with pre-verbal foci, with different readings, depending whether it precedes or follows them, as in (1.22).

(1.22) a. Nem Ferenc ment **le** a lépcsőn.
not Ferenc went down(VM) the stair-on
'It wasn't Ferenc who went down the stairs.'

b. ′Ferenc nem ment **le** a lépcsőn.
Ferenc not went down(VM) the stair-on
'It was Ferenc who didn't go down the stairs.'

Like the other arguments presented above, this is genuinely problematic for any 'single position' account, in the strict sense, within the assumptions of conventional syntactic frameworks, but it does not preclude the possibility of a unified analysis of the PV phenomenon. The dynamic analysis that I develop in the later chapters of this thesis concentrates on the notion of how PV as a relationship between different items and the tensed verb, rather than an abstract position as such, contributes to different interpretations. This allows for the different characteristics of different PV items to have different effects, so that some may indeed be compatible with each other pre-verbally, while others exclude each other.

1.3.2 The verb movement analysis

The arguments against a single pre-verbal position for mutually exclusive PV elements being insurmountable within mainstream syntactic frameworks, separate

positions for VMs, foci and negation have to be postulated in syntactic analyses. This requires some alternative explanation of the postposing of VMs in the presence of foci or negation. One highly influential proposal, to which a number of linguists still adhere is that of Bródy (1990,1995), that V>VM order is caused not by postposing of the VM (or the VM failing to move) but by leftward movement of the verb, past the VM. In other words, the VM is in the same underlying position when pre-verbal in 'neutral' sentences and when post-verbal in 'non-neutral' sentences (whether this is considered to be its base-generated position or one that it moves to prior to V-movement). The explanation of post-verbal VM position is therefore somewhat parallel to the clause-final stranding of verbal particles in German main clauses, according to the V-movement analysis of V2 effects (van Riemsdijk 1982).

This analysis involves the assumption of an FP projection (as originally suggested for Hungarian by Choe 1989), that is associated with an exhaustive focus reading and hosts syntactically focused constituents in its specifier position. The verb is said to move to the head of FP to check a [+F] feature, which must be assumed to be associated with the verb somehow. This accounts for both the apparent postposing of VMs in the presence of focus and the strict adjacency of focus and verb

There are problems with the verb-movement approach, however. É. Kiss (2002) brings a theory-internal objection: whatever the precise analysis of the pre-verbal position of VMs (É. Kiss assumes them to be the specifier of an Asp(ect)P projection), they are generally considered to be incorporated into the verb in some way. Bródy's analysis therefore requires some process of 'excorporation' in order for the verb to move and strand the VM, and such a process is considered theoretically problematic. Alternatively, one could say that incorporation is somehow blocked by the presence of a focused constituent, but there is no clear motivation for this and it would in any case make for a much less elegant and general explanation. Koopman & Szabolcsi (2000) note a more straightforward empirical problem: the verb-movement account predicts that a post-verbal VM should always immediately follow the verb. While this may be the position of the postposed VM, which is generally preferred as close as possible to a finite main verb, it is not the only grammatical possibility: the VM may appear in any post-verbal position, as (1.23) shows (the judgements are due to É. Kiss 2002).

(1.23) a. Pétert mutatta **be** János Marinak.
Péter-ACC showed in(VM) János Mari-DAT

b. Pétert mutatta János **be** Marinak.
Péter-ACC showed János in(VM) Mari-DAT

c. (?)Pétert mutatta János Marinak **be**.
Péter-ACC showed János Mari-DAT in(VM)
'It was Péter that János introduced to Mari.'

This is particularly problematic in the case of sentences containing a tensed auxiliary. Recall from (1.18) that in the 'neutral' version of such sentences, the VM is found, as usual, to the immediate left of the tensed verb—hence to the left of the auxiliary, as in (1.24a). When a focused expression fills this position, a prefix VM is visibly not simply 'stranded' post-verbally, but must appear to the left of the main verb infinitive, as shown in (1.24b,c).

(1.24) a. Mari **be** fog akarni menni.
Mari in(VM) will want-INF go-INF
'Mari will want to go in.'

b. *Mari fog **be** akarni menni.
Mari will in(VM) want-INF go-INF
Intended: 'It's Mari who will want to go in.'

c. Mari fog akarni **be**menni.
Mari will want-INF in(VM) go-INF
'It's Mari who will want to go in.'

One way to deal with this would be to assume that (1.24c), rather than (1.24a), represents the underlying position of the VM—that is, that VMs always occur to the left of the main verb, prior to verb movement. This makes sentences with finite main verbs parallel to those with finite auxiliaries, in this sense, but it means admitting that the VM occupies a different position in 'neutral' and 'non-neutral' versions of the latter, which of course removes the basis of the verb-movement analysis. A special and apparently rather unconstrained process of 'VM-climbing' then has to be introduced to account for the pre-auxiliary position of VMs in sentences like (1.24a). If this is maintained alongside verb-movement with finite main verbs, then

the analysis fails to reflect in a unitary fashion the simplest possible generalisation about the PV data: that VMs, foci and negation precede the tensed verb[11].

1.3.3 Independent movement to multiple PV positions

If neither a 'single position' analysis nor a 'VM-stranding' analysis is viable, the remaining mode of explanation within a conventional syntactic analysis is the idea that foci and VMs each move to different pre-verbal positions, but for some reason the one blocks the movement of the other. É. Kiss (2002) proposes that VMs move to AspP, which is projected above VP as an alternative to the projection of FP. While this may avoid the particular syntactic objections to the original 'single position' kind of analysis, it is clearly not highly explanatory (cf. Jo's (1995) mutable feature, mentioned above); indeed, it is essentially no more than a re-statement of the data in Minimalist vocabulary. Furthermore, É. Kiss's (2002) analysis of certain other phenomena appears to rely on the co-occurrence of FP and AspP (see É. Kiss 2002, 66, and Chapter 7, section 7.2.1 of the present work). In fact, the notion that an AspP projection could account for the behaviour of the whole disparate class of VMs is rather problematic, as É. Kiss recognises in more recent work (to appear) (see Chapter 7).

A quite different kind of account is offered by Dalmi (1998,2000) and Szendrői (to appear), who give a non-syntactic motivation for the movement of either focus or VM to a pre-verbal position. Both argue, though in different ways, that prosodic requirements lie behind the significance of the immediately pre-verbal position.

Dalmi's account postulates a set of 'operators', including exhaustive focus, negation and the EXIST and PROG 'aspectual operators' said to be responsible for sentences like those in (1.14), all of which are available via their respective functional projections in the pre-verbal field. She also assumes a constraint on phonological phrasing that requires some item to precede the verb and carry a pitch accent. If none of the aforementioned operators is instantiated, a VM incorporates into the verb to occupy the position that must carry a pitch accent. This is problematic in a number of ways. First, it is not at all clear that Dalmi's operators form a natural class,

[11] Koopman & Szabolcsi (2000) reject the verb-movement analysis altogether and promote the 'VM-climbing' idea as one aspect of a highly abstract and complex system of syntactic machinery, involving a number of unconventional assumptions about constraints on syntactic models. This is intended to account primarily for ordering restrictions on sequences of post-auxiliary infinitival verbs; a matter well beyond the scope of this thesis, which is not obviously more than tangentially connected to the basic question of how PV items interact with each other and with the tensed verb.

as she claims: simply calling something an operator does not capture any essential characteristic of either its contribution to interpretation or the reasons why this should relate to particular syntactic behaviours. The danger inherent in viewing the postulation of an operator as a form of explanation is discussed in more detail in Chapter 7, section 7.2 in relation to EXIST and PROG, and is also implicit in the discussion of the nature of PV focus in Chapter 3. Second (a theory-internal point), as Koopman & Szabolcsi (2000) point out, the fact that full XPs can be VMs, as in (1.13), casts doubt on the idea that VM position is the result of a 'last resort' process of the incorporation of syntactic heads.

In addition, the phonological side of Dalmi's account requires a number of *ad hoc* assumptions to make it work. For instance, the silent operators EXIST and PROG must be assumed to permit the pitch accent that otherwise must be pre-verbal to be shifted onto the verb itself. This is potentially not too damaging, since the marked interpretations with which they are associated could perhaps be said to justify such a marked operation (with regard to parsing and learnability, for example), but there are of course VM-less verbs that allow for a pragmatically unmarked interpretation in which they themselves carry primary stress, as in a simple sentence like (1.25).

(1.25) Mari ′szereti ′Jánost.
Mari loves János-ACC
'Mari loves János.'

To account for these cases, Dalmi is forced to assume that such verbs appear with another silent operator in AspP, which shifts stress onto the verb.

Szendrői's (to appear) analysis avoids most of these problems, as it effectively views the relationship between prosodic structure and PV effects from the opposite perspective: rather than a pre-verbal position having to be filled, the canonical position of the verb is associated with primary stress, and foci are forced by an interface requirement to move to acquire primary stress. This has the advantage of explaining the uniqueness of the syntactic focus position without recourse to any kind of stipulation of a syntactic nature: as there is only one location of primary, or 'nuclear', stress in each sentence, there can be only one expression bearing it as a result of movement. VMs are assumed to be *in situ* when pre-verbal. An FP is assumed to be projected to provide a landing place for any focus, prompting Bródy-style verb movement to derive the order focus>V>VM. This means that Szendrői's account

is of the kind described in section 1.3.2, requiring both verb-movement and 'VM-climbing' and thus losing a unitary analysis of the generalisation that VMs precede the tensed verb.

Szendrői's particular version of 'VM-climbing' has the curious status of a syntactic operation that exists not to allow the moved expression to take stress, as in the case of her account of focus movement, but in order to prevent another item from taking stress: specifically, the auxiliary verb (e.g. *fog* in (1.18)). Szendrői notes, following work by Komlósy (1992) that such verbs can bear primary stress only on a marked reading. It is not clear, however, why this should lead to the postulation of any special process to prevent them bearing stress. As shown in Chapter 7, section 7.2, the inability of such verbs to appear bearing stress in a 'neutral' sentence (i.e. with a 'topic-comment' reading) is attributable entirely to semantic and pragmatic factors. There is no reason to believe that the distribution of other items is in any way determined by this independently explicable matter.

In addition, as Szendrői (to appear) recognises, the stressed based focus-movement analysis meets an empirical problem in the shape of sentences like (1.7b), repeated here as (1.26), in which contrastive focus that as usual carries the primary stress of the sentence fails to induce V>VM order.

(1.26) 'Minden gyerek **meg**ijedt, nem csak a lányok.
every child VM-feared not only the girls
'EVERY child got frightened; not just the girls.'

While this phenomenon requires some degree of *ad hoc* explanation in all frameworks, the stress-based analysis makes it particularly unexpected. In my analysis (see Chapter 4), this impossibility of the universally quantified NP in (1.26) occupying PV is predicted by the interpretative procedures associated with this position—procedures that are involved in the explanation of the use of PV for exhaustive focus in other cases. The exceptional status of (1.26) is thus forced by the grammar and not a puzzle for the analyst.

1.4 Beyond conventional syntactic analysis

While the brief survey in the preceding section is far from comprehensive, it covers the main trends in the analysis of PV phenomena under mainstream syntactic approaches. It is clear that while each of these modes of analysis points to certain

insights, none successfully explains the relation between VMs, syntactic foci, and items like the negative particle *nem*, even in terms of simply accounting for their mutual exclusivity in PV. Approaches that invoke phonological factors seem in some ways to offer potentially more coherent explanations, by relying not only on the tools of syntactic theory, but fall short of producing a truly general account, requiring at least two main forms of explanation to cover all the data, including auxiliary constructions and cases in which VM-less verbs take stress.

Even to achieve the degree of descriptive adequacy that they do manifest, all of these syntactic accounts rely on a considerable number of highly abstract elements, many of which in effect encode semantic primitives that are posited at an essentially arbitrary level of detail. The most obvious of these is the notion of focus itself, which is generally assumed to be encoded directly as an exhaustivity operator, with little discussion of the differing impact of sentences containing syntactically focused expressions in different contexts (Szendrői to appear is a notable exception in this regard), let alone whether this may relate to the interpretation of other expressions, such as VMs and VM-less verbs. Indeed, this last question is not even entertained as a possible line of enquiry in most of these approaches, despite the fact that É. Kiss (1987,1994) gives reason to believe that it might be fruitful.

In the next chapter, I argue that the kind of limitations apparent in these analyses are to a great extent inherent in the assumptions of mainstream syntactic theory and in the relationship to meaning that it is assumed to bear. I submit that these assumptions encapsulate a view that is both too optimistic about the potential directness of the relationship between the structures syntacticians propose and the structure of truth-conditional semantic formulae and too pessimistic about our ability to investigate a broader conception of interpretation in a rational way. Only by going beyond strict notions of compositional semantics and static representations of syntactic structure can phenomena like the interaction of PV elements in Hungarian be truly explained in a parsimonious fashion. This crucially involves investigating the boundary between encoded and inferred meaning, and thus relies on consideration of pragmatic theory to explain syntactic effects. This approach does not constitute a rejection of the basic generative goal of characterising an individual's knowledge of his or her language; on the contrary, it is an attempt to reconsider this goal seriously in the light of a reasoned approach to the cognitive strategies involved in linguistic communication. Though the analysis that I develop in later chapters is novel in the kind of representations it employs to capture the particular facts of Hungarian, the theoretical background is shared with with other work that

has successfully been applied in the explanation of numerous syntactic phenomena. The nature of this theoretical approach is the topic of the following chapter.

Chapter 2

Theoretical Approach

2.1 The approach

In Chapter 1 I suggested that fundamental aspects of mainstream syntactic theory cause problems in the analysis of phenomena like the interaction of immediately pre-verbal constituents in Hungarian. The assumption that surface forms correspond to static hierarchical representations that are distinct from those of logical form precludes the possibility of unifying the description of a set of phenomena whose relatedness is suggested by a complex of structural and interpretive factors.

The analysis of the Hungarian data that I present in this thesis provides a generalisation about the significance of the immediately pre-verbal position which unifies the various structural and interpretive effects associated with it. Taken in the context of an adequate theory of general pragmatic principles, this allows for the explanation, rather than mere description, of both similarities and differences between different kinds of pre-verbal item. The ability to state such a generalisation depends upon the adoption of a number of assumptions that differ from those of most syntactic theories. These assumptions are the basis of a dynamic perspective on linguistic structure; that is, a perspective from which the explanation of structural aspects of language is inseparable from the role they play in parsing and interpretation. The relevant assumptions are not new, as I indicate below: many of the important ones follow from work in Relevance Theory, while my approach as a whole is closely aligned to that of Dynamic Syntax (Kempson *et al.* 2000), which provides a formalisation of the dynamic approach as a generative system (see also Tugwell 1998 for discussion of other examples of dynamic approaches to grammar). Nevertheless, this remains a novel, unconventional approach, to which many linguists have had

little or no exposure. Moreover, the current work is to my knowledge the first to apply this approach to Hungarian syntax. It is therefore necessary in this chapter to outline my fundamental assumptions about the organisation of the grammar of human languages, indicating what I perceive to be the most important aspects of the dynamic approach, both for the study of language in general and for the analysis of Hungarian.

2.1.1 Basic assumptions about structure and interpretation

The approach taken in this thesis is set squarely within the bounds of mentalist generative linguistics, in the sense that it aims to contribute to the characterisation of a speaker's knowledge of his or her language, through the investigation of structural mechanisms underlying the ability to distinguish well-formed from ill-formed strings. Beyond this, however, the assumptions which I adopt differ from those of most generative work at a fundamental level.

Most crucially, the dynamic approach rejects the idea that the purely structural element of the grammar—the component of the grammar known as syntax (as opposed to the 'logical syntax' of semantic representations) involves principles that are definable over complete sentences, such that 'the structure' of a sentence (under a given reading) can be stated in the form of a single, static representation of constituent structure (with or without further transformations). Instead, hierarchical constituent relations are expressed only in representations of the propositional form of the sentence—that is, in semantic representations of a certain kind. The surface structures of natural language are viewed instead as consisting of incrementally processed 'instructions' to the interpreter to build certain kinds of structured propositional form. This is no mere terminological change from mainstream generative syntax, but in fact implies a radically different conception of the grammar and allows for considerable redistribution of the burden of grammatical explanation among the different components of linguistic competence, as I demonstrate in this thesis.

In addition, I reject certain often implicit assumptions frequently made about the nature of meaning encoded in the grammars of natural languages. Alongside the notion that the structure of natural language sentences can be captured in static representations it is typically assumed that these structures, at some level, relate algorithmically to declarative logical semantic information, such that all of the meaning conveyed by the structure of natural language sentences is to be defined in

terms of compositional truth-conditional semantics. The perspective on structure outlined above—that natural languages are systems of instructions for constructing a logical form, rather than having a logic-like structure at every level—clearly implies a different perspective on what is encoded in sentence structure. Rather than acts of interpretation involving simply the decoding of compositional semantic information, natural language may encode procedures for constructing a particular kind of interpretation; this much is already assumed to some degree in frameworks like DRT (Kamp & Reyle 1993). Furthermore, this procedural view on interpretation opens up the possibility that linguistic structure may encode triggers for inferential processes, rather than necessarily having a fixed, algorithmic relation to some aspect of the final interpretation of the sentence. In this way, it is possible for linguistic structure to underspecify interpretation considerably. Importantly (especially for the analysis of grammatical phenomena like the Hungarian data of the previous chapter), this means that different observed interpretations of a linear string do not necessarily imply different underlying structures; it may be that a single, underspecified interpretive factor is encoded, with a variety of possible consequences following from the different inferences that may be drawn in different contexts.

The need to go beyond fully compositional, truth-conditional semantics is now well established through frameworks like DRT, but the interaction of procedural information and inference in context has been discussed very little outside of the Relevance Theory literature and its full explanatory potential has certainly not been investigated, nor its potential implications for the syntactic component. The idea that there are no static representations of sentence structure is still less well accepted, 'the structure of a sentence' being still one of the most basic concepts in linguistics. In what follows, I therefore outline the principal motivations behind these assumptions.

2.1.2 Static syntax is not logically necessary

In the broadest theoretical context, the initial motivation for considering the possibility that linguistic structure embodies a set of processing instructions rather than a static representation is the simple fact that this is a perfectly reasonable hypothesis, consistent with what is known about human cognition and communication, and as such its explanatory potential is worth investigating. It so happens that this possibility has generally been ignored within generative grammar, which has

in effect meant that generative grammar has covered only a certain sub-part of the space of possible explanations for linguistic phenomena.

This is of course no mere accident; it has been argued repeatedly that assigning abstract syntactic structures to sentences and investigating the properties of these structures and the means of generating them is the only principled way to initiate a scientific approach to human knowledge of language. While such structures are recognised to be idealisations—and, at least initially, possibly quite unrealistic ones—it is claimed, by analogy to idealisations in the natural sciences, that only this approach can lead to working models of linguistic competence (Chomsky 1988:6–8). The reason why this particular form of idealisation is taken to be necessary is based on two lines of reasoning; one put forward explicitly by Chomsky and his followers, the other not clearly compatible with any theories of linguistic structure, but the result of a kind of simplistic but persuasive stance on the logical role of syntax in conjunction with the assumption (explicit or otherwise) that encoded semantic information is fully compositional.

The reason to be found explicitly argued in the literature is inherited by generative traditions from the American Structuralist school and amounts to no more than the belief that matters of interpretation are simply too chaotic and difficult to analyse to be admitted into the basic data of scientific enquiry. For Chomsky, all aspects of interpretation—semantics and pragmatics—are in principle to be viewed as aspects of the use of language rather than part of a model of competence. The use of language, it is argued, is too little understood to provide even delimitation of the syntactic component. From a contemporary perspective, this position seems quite unsustainable. As Jackendoff (2002:123) points out, a variety of different approaches to meaning have shown in recent decades that there is (at least in principle) much of scientific value to be said about the structure of meanings conveyed by natural languages, including the nature of semantics as a combinatory computational system. I would add that even pragmatics, which by definition deals with the use of language, has been given both a clear role within a mentalist approach to the language faculty and a sound basis from which to make explanatory claims about aspects of the relation between structure and interpretation, thanks to the reasoned approach to the role of inference in communication and cognition that underpins Relevance Theory (Sperber & Wilson 1986; see also section 2.2).

Given these considerations, it seems unnecessary and undesirable to treat idealised representations of the abstract structure of sentences as the only domain of enquiry for generative theory. Insights gained from other components of the language faculty

should be seen as being useful in delimiting the scope of syntactic theory, at the very least, and also quite reasonably as a prompt for wholesale re-assessment of the presumed nature of the grammar and of the syntactic component in particular.

This might appear to be a description of precisely the turn taken in the move from the 'Principles and Parameters' stage of Chomskyan theory to the Minimalist Program (Chomsky 1995), in which the content of the syntactic component is in principle to be influenced heavily by the requirements of its interfaces with other cognitive modules. However, the fact that most Minimalist work simply accepts the vague characterisation of PF as the 'articulatory/perceptual interface' and LF as the 'intentional/conceptual interface' demonstrates that little serious effort is being made here to admit insights from anything but pure syntactic theory—and as such it is not clear that the Minimalist Program is founded on genuine 'conceptual necessities' at all, let alone the full range of conceptual necessities that such a framework should take into account (see Jackendoff 1997 for more detailed criticism of Chomsky 1995 along these lines). What remains is virtually the same dismissal of serious investigation of non-syntactic domains as characterised earlier Chomskyan theory[1].

The second reason for the characterisation of the syntactic component as a system of abstract structures lies in the apparent logic behind what the syntactic component must be. This has to do with the very definition of the word 'syntax'. The syntax of any system of representation is set of structural principles that mediate between the elements of the system and the meaningful complex structures in which they may participate. This means that semantic representations have their own syntax, in the broader sense. This broader sense might be termed 'logician's syntax'. On the assumption that sentence structure ultimately encodes compositional semantic information, it is natural to model this using static structural representations. Given this definition of 'syntax', it seems reasonable to conclude that the syntactic component to human language must be representable using static hierarchical structures—sentences are demonstrably meaningful to people and therefore they must have underlying structures that people access in order to interpret them.

[1]This is not to deny that some works have taken this aspect of the theoretical background to the Minimalist Program more seriously than others. The likes of Reinhart (1995) and Neeleman & Reinhart (1998) are examples of real attempts to constrain the scope of syntactic theory by direct consideration of its 'interfaces'. Work on Hungarian that directly follows this line is to be found in Szendrői (to appear). A major problem for this kind of approach is the question of how much of previous syntactic theory can be simply imported into the new framework, since the results of previous syntactic work were produced without the crucial new theoretical assumptions.

This kind of reasoning, however, fails to account for the degree of abstraction inherent in the linguist's (as opposed to the logician's) concept of syntax (as a component of the language faculty). The surface characteristics of sentences may relate to all kinds of influences on meaning, as well as being determined in part by independent processing and phonological constraints. No generative theorist would suggest that the above reasoning, based on applying the logician's definition of syntax to natural language, in itself justifies the application of hierarchical syntactic structures to the superficial forms of sentences. Rather, LF (or some equivalent) is the level of representation at which meaningful compositional structure is expressed. The expression of logical form—essentially a matter of semantic representation—is therefore the only level at which static structural representations are justified by conceptual necessity (and then only insofar as the meaning encoded is truly compositional). In a framework which includes representations of logical form (whether LF or any equivalent of it), it is quite unclear what justifies the assumption of static hierarchical representations at any other level of the grammar. The conflation of the linguist's and logician's notions of 'syntax', even in the very theories which most vigorously promote abstraction away from surface forms and the postulation of more abstract levels with semantic significance, would appear to be a major factor in the unchallenged maintenance of static syntactic representations within mainstream generative grammar.

In this respect, the Chomskyan assumption that the same forms of computation are involved in the derivation of surface structures as those which are involved in creating LF representations seems quite unmotivated—still less the Minimalist idea that a surface structure is somehow built on an incomplete derivation of an LF structure (as determined by the location of Spell-out). There is one sense in which the surface form of a sentence is logically prior to its logical form, but this is not a matter of abstract computational 'knowledge': the only context in which it is truly necessary for surface forms to precede logical forms is in the actual process of parsing. The significance of considering the grammar from the point of view of parsing will be discussed in section 2.1.3. For the time being, the important point is the simple one that the processes which *produce* representations of propositions may be quite different in character to a system that characterises the structure of propositional form. It seems reasonable to suggest that these processes might take advantage of all the possible sources of signalling information that are made available by the conditions in which surface forms are realised—including, for example, prosody and linear presentation in real time—rather than only the properties of an abstract computational system.

2.1.3 Against static syntax

In the preceding section I argued that the surface forms of language need not be assigned static structural representations. Here I will offer some reasons why this may be not only unnecessary but also undesirable.

Abstraction and the accessibility of the object of study

Regardless of their merits in principle, efforts to characterise syntactic structure may be futile. Even if it is accepted that it is otherwise desirable to postulate a computational system that is responsible for both surface forms and logical forms and to investigate its properties, there are practical limitations on the construction of a theory, imposed by the nature of linguistic data, which may overwhelm any attempt to do so. It is uncontroversial within generative linguistics that characterisations of syntactic competence must involve considerable abstraction. To access the workings of any putative syntactic computational mechanism, one must control for not only the messiness of real world data (which includes the use of ungrammatical and incomplete forms, and so on) but also for the influence of non-syntactic elements of linguistic processing: those aspects of speakers' acceptability intuitions that are dependent on phonological, semantic or pragmatic factors.

Despite increasing attention being paid to this notion—not least because it is built into the Minimalist Program in a more explicit way than in previous Chomskyan frameworks—there is little rigorous discussion to be found, within the majority of the syntactic literature, of the possibility of explanations of given phenomena at different levels. This has deleterious consequences for the explanatory potential of syntactic theory itself, as I shall argue below. However, this issue of the practice of syntactic research should not affect the more general theoretical discussion, concerning how in principle syntacticians might identify the contents of a computational syntactic component.

The question, then, is not whether linguists do access the putative syntactic level of representation accurately, but whether they ever could. It is not at all clear that it is possible to identify the syntactic component directly; that is, the only way to do so may be to investigate the other components of the grammar in order to eliminate their influence and 'see what is left'. If this is the case, it has consequences for the kind of perspective that must be taken on linguistic data.

The reason to believe that this is the situation is the fact that there is rarely if ever any *a priori* way to distinguish which part of the language faculty accounts for a given phenomenon. Speakers' intuitions, the primary source of data for the generative linguist, are notoriously unhelpful in this regard, and inevitably so—since it is in the very nature of (the relevant kind of) linguistic knowledge to be inaccessible to conscious reflection. This gap between speakers' intuitions and identifiably grammatical distinctions is well recognised:

> ...we may make an intuitive judgment that some linguistic expression is odd or deviant. But we cannot in general know, pretheoretically, whether this deviance is a matter of syntax, semantics, pragmatics, belief, memory limitations, style, etc. (Chomsky 1977:4)

Perhaps still more serious is the point, emphasised by Steedman (2000b), that the apparently more clear-cut analytical tools for establishing the structural properties of sentences, such as the substitution, deletion and moveability tests for constituency, are not clearly indicators of purely structural (as opposed to semantic, or semantically influenced) properties. This leaves little or no way to establish directly from the data even what the scope of syntactic theory should be.

Syntactic theorists are generally well aware of this point (witness the above quotation from Chomsky) and, rather than attempt to deny it, argue that the question of which component of the language faculty is responsible for a given phenomenon is an empirical one. That is, they place their faith in the idea that the boundaries and internal character of the syntactic component will become clearer as a result of amassing a suitably deep and broad body of (syntactic) research into a variety of grammatical phenomena. Any proposed model should make predictive hypotheses and standard falsificationist scientific procedure should lead to more and more accurate models.

The problem with this apparently quite reasonable position is the theoretical status of the assumptions in question. The hypotheses tested by syntacticians typically do not and cannot have the form 'If phenomenon P in language L is accounted for by structural principle S_1, then it is correctly considered a syntactic phenomenon. Otherwise, it must be considered a semantic (or other kind of) phenomenon'. Instead, they tend to have the simpler form 'Phenomenon P in language L is accounted for by structural principle S_1', which if falsified can be replaced by an alternative hypothesis involving structural principle, S_2, S_3, S_4, ..., *ad infinitum*, without ever

leading to the abandonment of the *assumption* that some principle of syntax rather than semantics, pragmatics or phonology must be involved. It is not clear what kind of evidence would be required to falsify this kind of background assumption, especially within the context of a constantly evolving framework such as those found in theoretical syntax.

Jackendoff makes a related point in another context:

> One can't just "choose the strongest hypothesis because it's the most falsifiable" and then end up excluding phenomena because they're not "core grammar" (i.e. whatever one's theory can't handle). In order to draw a boundary properly, it is necessary to characterize phenomena on *both* sides of it, treating phenomena "outside of language" as more than a heterogeneous garbage can. (Jackendoff 1997, 157; emphasis in original)

And just as it is not explanatory simply to dismiss any phenomenon that does not fit one's theory as being outwith core grammar, one should not accept that a phenomenon is explained, in any scientifically useful sense, simply because it *does* receive an account that is consistent with other mechanisms postulated within the confines of one's highly abstract model (*pace* Carr 1990). External factors must be allowed to impact on the scope of the theory—and the undisputed need for a degree of abstraction does not justify ignoring as many external factors as we can be reasonably sure of, if they demonstrably impact upon the process of relating forms to meanings.

As Jackendoff suggests, what is genuinely useful is when a convincing alternative explanation for phenomenon P is found using the tools of some non-syntactic theory. In this case, it is reasonable to assume (if only for the sake of satisfying Occam's razor) that syntactic theory need not take on the burden of explaining P. This implies that much greater efforts should be made to delimit the scope of any would-be computational syntactic component using the insights of other linguistic sub-disciplines. While this goes against the Chomskyan dictum that analysing structure alone is the only basis for a scientific approach to linguistic competence, it appears quite reasonable in the light of the above argumentation and advances made in non-syntactic linguistic theories in recent times. However, such a move has profound consequences for the perspective that must be taken on the grammar and processing, since certain crucial insights are only available given a certain perspective. This in

turn demands that grammatical theory be of a certain kind; a kind that does not admit of static syntactic structures, as I argue below.

The need for a parsing-based model

If all of the potentially explanatory linguistic domains are to be investigated for their relevance to structural phenomena, one of the factors that must be considered is the role of inference. As Sperber & Wilson (1986) discuss at length, the overall meaning of any linguistic utterance to the addressee of that utterance will of necessity be a combination of encoded and inferred elements. Obvious, uncontroversially pragmatic examples of inference in the interpretation of utterances include the understanding of rhetorical figures such as irony and metaphor and the identification of non-literal 'speech acts', all of which involve the addressee inferring from a combination of the encoded elements of the utterance and aspects of the context that the communicative intentions of the communicator surpass or even contradict what may be decoded from the lexical and grammatical form of the utterance.

What is less often discussed in terms of inference (though this is logically the only explanation for it) is the fact that practically all utterances contain aspects of meaning which are underspecified out of context and whose precise import must therefore be inferred. The most obvious examples of linguistic elements that necessarily require acts of inference in context to provide them with semantic content are deictic elements such as *she* or *there*; the addressee being obliged to infer from all available contextual information what the otherwise almost semantically empty word is being used to refer to. This is only the most clear example of the fact that reference assignment is an inferential process: all referring expressions achieve reference only in context and only by virtue of the addressee's inferring the identity of the referent from among contextually available possibilities (which may be a very simple or quite complicated task, depending on the contextually-determined range of possible referents). Less obviously, this applies not only to the assignment of entities from the concrete context, but also to the identification of relevant concepts, as Carston (to appear), Wilson & Sperber (2002) emphasise (see section 2.2.1). In other words, vagueness as well as ambiguity must be resolved inferentially.

The ways in which inferences are drawn in context so that addressees are able to identify communicators' intentions to a sufficient extent are explicated by Sperber & Wilson's Relevance Theory, which is outlined in section 2.2. The important point for the present discussion is that certain inferential abilities are clearly a necessary part of the process by which linguistic forms come to be associated with interpretations.

Approaches which pay attention to this fact potentially stand to gain by making simplifications to what is encoded in lexical and/or grammatical machinery, since those aspects of meaning that may be inferred need not be encoded at any level.

Inference, however, only emerges in the course of interpreting an utterance; it cannot be viewed in static representations of either structure or meaning. Therefore, in order to ascertain the real shape of the grammar it is necessary to consider linguistic forms in the context of the act of interpreting them; that is, to take a parsing-based perspective on linguistic structure.

Delimiting the grammar in this way has important consequences in particular for the kind of meaning that can be found within the grammar. What tends to happen in frameworks that do not consider the addressee's perspective is that just those elements of meaning which appear indispensable to drive the derivation of correct word orders are introduced at the grammatical level, in the form of features or other primitives. In other words, the need to derive a static representation of superficial sentential structure leads to decisions about which elements of meaning are encoded. This is essentially *ad hoc*, failing to involve any independent evidence or reasoning regarding the meaning itself.

This approach can only be defended with recourse to the Chomskyan argument, already questioned above, that 'the issue is empirical': that only from sufficient syntactic study will there emerge accurate generalisations about the kinds of meaning that can be directly encoded as primitives. But if natural languages feature much underspecification in what is encoded, as they demonstrably do, then this faith is misplaced. One of the prerequisites for comparing descriptively adequate models of surface forms must be the investigation of the scope of inference through a model based in the process of parsing and interpretation, since many generalisations about meaning only exist within the domain of inference.

This point is of crucial importance for languages like Hungarian with regard to the notion of 'discourse configurationality' (É. Kiss). As discussed in Chapter 1, most syntactic analyses of Hungarian posit a special 'focus position', the occupant of which must bear a focus feature of some kind. Note that this involves encoding in the grammar aspects of meaning that are inextricably connected to interpretation in context.

There are a number of potential problems with this, all related to the issue of extending grammatical machinery to deal with phenomena that must in any case

be covered by extra-syntactic theory. Any feature that is posited as driving focus-related operations can be only a simple label, relating to a complex meaning that must be constructed in context. Even if exhaustivity rather than focus as such is encoded in the 'focus position' of Hungarian (in any case an inadequate analysis, as I argue in Chapter 3), the eventual 'exhaustive' meaning attached to the construction will inevitably be one that is relativised to a certain restricted context (as recognised by Szabolcsi 1983). Inferential pragmatic theory must be invoked to deal with the issue of how addressees restrict context accurately for such purposes. Given this, it does not seem the most useful methodology to encode a focus meaning to some arbitrary level of detail and to leave the rest to inferential pragmatic theory. Rather, it makes sense to investigate the phenomenon from an addressee-based perspective in order to see exactly which aspects of it follow from inferential processes and what the triggers for the relevant inferential processes are[2].

Such triggers potentially include the linear presentation of information. It may be, therefore, that syntactic approaches that attempt to derive word order from meaningful features, have the order of explanation of phenomena such as syntactic focus the wrong way round. This is not merely a matter of there being equally valid, separate perspectives on linguistic structure, one syntactic and one pragmatic. As I have emphasised above, the two must impact on each other: Occam's razor (and the whole spirit of the mentalist programme of research into the language faculty) demands that phenomena explicable by other, independently necessary operations should not be encoded in the grammar.

Because the point here concerns the perspective taken on interpretation, it applies not only to frameworks that assume fixed syntactic levels of representation, but to any approach that is not based in the act of parsing and interpreting utterances. Frameworks like Combinatory Categorial Grammar (Steedman 2000b) lexicalise all structural as well as semantic information, with the exception of certain basic modes of combination, but this simply means that the kind of problems identified above in relation to syntactic encoding become problems at the lexical level in such frameworks. In addition to the unresolved problem of identifying constraints on the kind of meaning that should be represented at a grammatical level, each meaningful relationship that is grammatically encoded potentially expands the lexicon massively. For example, encoding focus means that practically every lexical entry must have

[2]The assumption in the majority of work on Hungarian focus appears to be that the ability of focus to affect truth-conditions means that it must be encoded. Though conventional, this assumption is quite unmotivated and inconsistent with a mentalist linguistics, as discussed in section 2.2.1 (see also the discussion of Szabolcsi 1981 in Chapter 3, section 3.3.1).

a 'focused' and 'non-focused' form (which may have to differ considerably in order to capture syntactic effects). The only alternative within such frameworks is to introduce a theory of the lexicon that does the work of syntactic structure in other frameworks—and has all of its disadvantages, from the current perspective. An addressee-based perspective, on the other hand, allows for a minimal lexicon and maximally simple lexical entries by leaving many elements of meaning to be explained by inferential processes.

The above, as it stands, might be taken not as an argument in favour of frameworks that actually express structural relations as part of a parsing process, but rather in favour of a research programme into inferential meaning as a logical precedent to syntactic research. That is, it might seem that once inferential aspects of meaning have been identified, the remainder may be related to structure by static, abstract means. However, the adoption of an addressee-side perspective proves to open up further insights regarding the kinds of meaning that may be encoded, which are identifiable and expressible only within this approach. This suggests that grammatical representations must in fact reflect this perspective[3]. The insights in question derive from the notion of encoded procedural meaning. This is introduced in section 2.3.1, but first, in order to give the background to this notion and to expand upon the workings of inference in interpretation generally, I shall give a brief outline of Relevance Theory (for full details, see Sperber & Wilson 1986,1987,1995; Blakemore 1992).

2.2 Relevance Theory

Relevance Theory (henceforth RT), unlike some approaches to pragmatic issues, does not attempt merely to extend or supplement truth-conditional semantics. Instead it is based in reasoning about the cognitive principles that must underpin the interpretation of ostensively intended acts of communication, such as linguistic utterances, as they interact with the context in which they are produced. As such, RT rejects the idea that linguistic communication is essentially matter of encoding and decoding, of simply matching forms to meanings, in favour of an approach that recognises that interpreting a linguistic act practically always involves a mixture of

[3]It might be argued that context impacts upon both production and interpretation, calling into question the idea that a theory of knowledge of language should be actually based on parsing and interpretation. However, the logic of an inferential pragmatic theory like Relevance Theory (see below) is that communicators, for their own purposes, tailor their utterances according to the interpretations that they calculate will be triggered in context. In this sense, production is necessarily 'parasitic' on interpretation, as Kempson *et al.* (2000) put it. See Marten (1999) for other arguments for the primacy of interpretation.

decoding and inference over the significance of the decoded information in its linguistic and non-linguistic context. RT is not an algorithmic, generative framework, therefore, but it does provide a way of reasoning about what the scope of encoding within a generative framework should be.

RT approaches the notion of context from a human cognitive point of view: not in terms of direct representations of external reality, but in terms of evidence about reality which is necessarily filtered thorough human communicators' perceptual and cognitive abilities. Any utterance is interpreted relative to the addressee's 'cognitive environment', which is defined as the collection of all the assumptions for which an individual is able to create a mental representation and which that individual is able to accept as true or probably true (with varying degrees of commitment), given available evidence. Such assumptions are said to be 'manifest' to the individual. Roughly speaking, this means they are accessible, being directly perceivable or inferable from other manifest assumptions, without the individual necessarily being conscious of them. Any pair of communicating individuals will share a certain cognitive environment, consisting of assumptions manifest to both individuals. When it is also manifest to the individuals that they share these assumptions, they are said to be 'mutually manifest' and to form a 'mutual cognitive environment'[4].

The concept of a mutual cognitive environment is crucial to facilitating human communication, as it allows communicators to judge in what context their addressees will interpret a given utterance and, on the basis of this, to formulate utterances in such a way as to ensure that the intended meaning will be recovered[5]. The aim of an act of communication can also be defined in terms of cognitive environments: successful communication enlarges the mutual cognitive environment between individuals.

A given utterance is not interpreted against all of the assumptions in a mutual cognitive environment, since this will include many irrelevant assumptions and assumptions of different degrees of accessibility. Instead, communicators can be said to guide addressees to construct an appropriate context for the interpretation of an

[4]Mutual cognitive environment is therefore a psychologically better motivated and more precise version of certain other concepts in the literature, such as the 'common ground' of Stalnaker (1974) and others. It also replaces the problematic notion of 'mutual knowledge' assumed by many pragmaticists (see Sperber & Wilson 1986, 15ff. for discussion).

[5]This is not to say that this is always (if ever) achieved perfectly, or indeed that it is always achieved at all—it is one of the advantages of a pragmatic theory that eschews a simple coding model in favour of inferences over mutual assumptions that it correctly predicts that communication can sometimes break down. This happens when interlocutors fail to assess the scope of the mutual cognitive environment accurately.

utterance, in the sense of accessing those assumptions that are involved in reaching a particular meaning (by forming premises for logical deductions, or restricting the context for reference assignment, for example). Sperber and Wilson propose that addressees are able to identify appropriate assumptions (and thereby approach the intended meaning of an utterance) and, in turn, communicators are able to anticipate how different utterances will be interpreted in context, on the basis of a single basic property of ostensive communication: the Communicative Principle of Relevance[6]. This states that every act of ostensive communication communicates a presumption of its own optimal relevance.

'Relevance' has a technical sense within RT, though this is intended to reflect the everyday definition of the word in many of its uses. It is a relative measure of the benefit:cost ratio involved in processing some piece of information, where the cost involved is mental processing effort and the benefit comes in the form of 'contextual effects'. The latter are of three kinds: the strengthening of existing assumptions (increasing the addressee's commitment to their truth), the contradiction (and elimination) of existing assumptions, or the creation of contextual implications (logical implications which arise only from the interaction of incoming and existing assumptions). Note that contextual effects are always derived from the interaction of 'new' information gained from the incoming utterance with 'old' (existing) assumptions from the cognitive environment. This is consistent with the intuition that information to which an individual has no prior point of contact is not relevant to that individual, while it is clearly a waste of effort to process information that has no new elements to it. When discussing this kind of relevance to an individual, Sperber & Wilson (1995:265) shift to the notion of '(positive) cognitive effects', to avoid any inappropriate conception of context as a fixed set of assumptions; a purely formal object. The difference in terminology is largely symbolic, but is a useful reminder that the basis of utterance interpretation is to be sought in those aspects of human cognition that enable utterances to be related to contexts.

For something to be relevant to an individual at a given time it must have some positive cognitive effect in one or more of the immediate contexts (proper subsets of the cognitive environment) available to that individual at that time. The overall degree of relevance, however, is not simply a matter of richness of cognitive effects, because this is balanced by the effort involved in arriving at those cognitive effects.

[6]Also known as the Second (or Communicative) Principle of Relevance. I follow here the terminology of Sperber & Wilson (1995); in the 1986 exposition, this is simply known as the Principle of Relevance. See below for the Cognitive Principle of Relevance, which was introduced in 1986 as the presumption of optimal relevance.

An assumption is relevant to an individual to the extent that it produces a high level of cognitive effects but also to the extent that it requires a low level of processing effort. The definition of the presumption of optimal relevance is given by Sperber & Wilson (1995:270) in the form of the Cognitive Principle of Relevance, as follows.

(2.1) *The Cognitive Principle of Relevance (presumption of optimal relevance)*

a. The ostensive stimulus is relevant enough for it to be worth the addressee's effort to process it.

b. The ostensive stimulus is the most relevant one compatible with the communicator's abilities and preferences.

In other words, two basic conditions hold of the act of communication: it achieves at least enough relevance to be worth processing (i.e. it has some significant level of contextual effects without demanding excessive effort); and it fulfils the communicator's intentions as efficiently as possible (requiring just enough effort to have the intended contextual effects, and at the same time having the richest possible contextual effects, given a certain level of effort).

Because, by the Communicative Principle of Relevance, every utterance communicates its own conforming to (2.1), addressees can use the notion of optimal relevance to guide them to a communicator's intentions. A given utterance must guide the addressee to the intended interpretation via the 'easiest' route, indicating the contextually most accessible assumptions that will interact with the addressee's current assumptions in such a way as to produce the intended contextual effects. This means, in turn, that the addressee may stop at the first interpretation he arrives at which is consistent with the presumption of relevance and may assume that this is the intended interpretation (this means that no effort is wasted on comparing different possible interpretations; Sperber & Wilson 1986, 165ff.). Furthermore, the presumption of optimal relevance means that addressees can use the relative processing effort demanded by an utterance as a measure of how rich the intended set of contextual effects must be. Thus, a relatively costly utterance must communicate that there are relatively rich contextual effects to be gained from its interpretation. This argument is the basis of the relevance-theoretic analysis of, among other things, metaphor and irony, and will prove useful also in the analysis of the exhaustivity of Hungarian syntactic focus.

The Principle of Relevance exists not as a goal or an ideal that speakers are supposed to aim for (somewhat in the manner of Gricean conversational principles), but

rather as a description of an intrinsic property of utterances as ostensive acts of communication. This follows from the fact that any such act of communication demands the attention of the addressee and in so doing carries the implication that it is worth making the effort to pay attention to. If an addressee finds an utterance irrelevant, this is clearly against the interests of the communicator, whose own effort is wasted if his or her intentions are not recognised. The same is true of anything above and beyond the bare minimum of relevance: if the communicator wishes to guarantee that the addressee will make the effort to recover all of the intended meaning of an utterance, it must be clear to the addressee that this does not involve any wasted effort that might otherwise leave the addressee unwilling to complete the act of interpretation. Therefore, the very fact of (recognisably) initiating an act of communication, and thereby signalling the desire to convey something, also signals a commitment to do so in a way that demands minimal effort of the addressee, relative to the cognitive effects offered. It is because of this inference drawn about the interests of communicators, and not due to any specific Gricean contract between interlocutors, nor any notion of the altruism of communicators, that addressees are able to presume optimal relevance and to use this to identify communicators' intentions.

2.2.1 RT and the semantics-pragmatics distinction

RT is a general theory of the role of inference in cognition. The scope of its applicability in linguistic matters is therefore not determined by traditional views of the distinction between semantics and pragmatics. It is determined rather by evidence concerning those elements of meaning that are encoded in linguistic forms, as opposed to those that can or must be inferred. This may seem a trivial point: any approach to linguistic meaning ought to be an investigation of what language encodes. Nevertheless, RT does differ in this respect from the approach to meaning commonly adopted even in linguistics. The latter is based on the philosophical tradition of defining meaning in terms of truth; a perspective that has led to a much greater concentration on declarative formulae that bear truth-conditions than on the range of means by which such formulae may be conveyed and reconstructed via the use of language.

Taking truth-conditions as the starting point for the study of meaning has obscured the fields of semantics and pragmatics at least as much as the study of grammar has been distorted by the concentration on syntax as the single point of scientific enquiry. While the existence of ellipsis, vagueness, deixis and anaphora

are uncontroversially accepted to show that truth-conditional formulae are not directly encoded in natural language sentences, the underlying assumption of most approaches to interpretation is still that the processes involved in the construction of propositional formulae, including reference assignment and disambiguation, are quite separate from the kind of pragmatic processes that go beyond (in Grice's terms) 'what is said', such as cancellable implicatures, irony and metaphor[7].

Even frameworks such as DRT, which recognise a procedural element to linguistic interpretation, maintain some version of this assumption. DRT has a dynamic element insofar as the processes of introducing new discourse referents or accessing and manipulating existing ones may be triggered by lexical or grammatical information, but such processes are encapsulated strictly within a model-theoretic approach, in the absence of any cognitive theory of context and of how different aspects of context are selected for interpretive purposes by language users. This leads to certain theoretical distinctions that (whatever their apparent linguistic justifications may be) are somewhat obscure in cognitive terms. A strict distinction between 'pragmatic presupposition' and 'real' or semantic presupposition tends to be maintained, for example, even though in processing terms all forms of presupposition must involve contextually-dependent selection of certain assumptions that act as necessary background for establishing the relevance of encoded information (a wholly pragmatic view on presupposition is briefly outlined in Chapter 3).

RT shows that once the creation of meaning is viewed in terms of cognitive behaviour, all the context-related aspects of interpretation fall into one pragmatic domain. The assignment of reference, processes of disambiguation and the enrichment of underspecified semantic content all involve the addressee's ability to recover the communicator's intentions on the basis of contextually available information, according to the same principles as understanding the illocutionary force of a non-literal speech act or identifying sarcasm. Given the existence of a general principle of cognition (the Principle of Relevance) to explain this ability in the latter cases, it is clearly superfluous to invoke special (quasi-)linguistic processes to cover the former cases, just because these happen to contribute in an obvious fashion to the truth-conditions of semantic formulae.

The involvement of inference in creating propositional formulae undermines a number of assumptions that are held, explicitly or otherwise, in much of the linguistics

[7]For a range of opinions on the relation between semantics and pragmatics, see the papers in Turner (1999).

literature and that underpin the methodology of many semanticists and syntacticians alike. One is the assumption that the domain of pragmatic theory can be defined as those elements of meaning that do not affect truth conditions. Another is the assumption that natural language sentences encode propositional formulae. RT emphasises that language merely provides a (frequently quite sketchy) basis for (re-)constructing a meaning. Indeed, the RT perspective, based in the consideration of general principles of efficiency in cognition, leads one to *expect* that humans will not communicate by a system of exhaustive encoding and decoding of propositional forms. Thus, just as I have argued against the notion of 'the structure of a sentence', it is wrong to refer to 'the interpretation of a sentence', at least if this is conceived of as a single propositional form that is encoded by the sentence.

The insights of RT—of investigating the role of general inferential processes in the process of interpretation—therefore lead to a radical re-alignment of the modules involved in linguistic interpretation, as they are traditionally thought of: syntax, semantics and pragmatics. Typically, linguists conceive of these modules as having precisely this order in a model of the language faculty. This is considered a logical necessity, since semantic representations are thought of as being 'read off' the structure of sentences (the output of the syntactic module) and pragmatics is taken to be some form of 'extra-linguistic' supplement to the propositional forms manipulated in the semantic module. RT emphasises, however, that what can be read off syntactic structures (however these are conceived of) is generally somewhat short of being a full semantic representation, considerable inferential processing being necessary to convert what is encoded in a natural language string into a proposition. Truth-conditions therefore cannot be stated over what is encoded in the grammar, but only over representations resulting from what may be significant 'enrichment' processes. This means that the place of semantics and of pragmatics must be reconsidered. Semantic representations do not follow on directly from syntax, but rather from the effects of syntax and inferential pragmatics working in tandem (see Marten 1999, 16 for further discussion of this point). Note that this is not simply a consequence of concentrating on the process of interpretation (as opposed to production or more abstract notions of competence); rather it is a motivation for doing so, since the context-dependence of much of what is encoded in lexico-syntax means that it is quite impossible to produce a competence model that maps directly from syntax to truth-conditional semantic formulae.

In fact, in all theoretical approaches it has been long recognised that there is generally a gap between what can possibly be encoded in an utterance and the propositional form it is understood to convey, at least insofar as reference assignment and disambiguation—processes that unquestionably depend on the immediate context (including aspects of the psychological state of the interlocutors)—must apply before a truth-conditional representation can be identified. Most conventional approaches otherwise assume a fairly close correspondence between encoded meaning and truth-conditional semantics, but research in frameworks like RT has emphasised that the gap must be considerably bigger than this. Wilson & Sperber (2002) discuss examples like the following:

(2.2) a. I can't stay. I must run to the bank.
b. Holland is flat.
c. *Alan*: Do you want to join us for lunch?
Lisa: No, thanks. I've eaten.

Wilson & Sperber point out that none of these utterances would be interpreted according to any plausible definition of their 'literal meaning', though they are all quite normal, everyday uses of language, rather than distinctly 'poetic' or otherwise clearly marked usage. The speaker of (2.2a) could hardly be said to have misled her audience if she in fact walks fast all the way to the bank, for here the verb *run* may be taken to mean something similar to 'hurry' (by any means). At a push, this might be put down to lexical polysemy, but this option is not appropriate for an example like (2.2b), whose proper interpretation seems to depend rather on a contextually determined degree of precision: the speaker of this example would generally be considered to be speaking the truth, since Holland doesn't have sizeable hills or mountains, even though no country is completely free of slopes (so it would be judged equally truthful to point out that some parts of Holland are flatter than others). On the other hand, were Alan to find out shortly after the conversation (2.2c) that Lisa had last eaten the day before, he would have the right to consider that she had spoken falsely. Indeed, he would feel the same if he knew she had eaten just a biscuit since breakfast on the same day. The truth of her statement clearly depends on her having eaten something that constitutes a midday meal shortly before the conversation takes place, not on her having eaten something at some point in her life—yet there is nothing in the form of the utterance to ensure this interpretation.

As Wilson & Sperber recognise, one may always maintain a strictly syntactico-semantic analysis of such examples by positing 'hidden constituents' that supply the difference between the encoded meaning and what is perceived to be the truth-conditional meaning—for example, restricting the scope of the perfective *have eaten* in (2.2c), or providing a suitable scale of precision for *flat* in (2.2b), but (depending exactly how this is done) such constituents are either entirely *ad hoc* or effectively promissory notes for a still necessary set of inferential pragmatic operations (see also my comments on 'contextual' operators or variables, in section 3.2.1).

Examples such as these illustrate that linguistic communication is very generally context-dependent, in the determination of what is the basic truth-evaluable proposition conveyed by an utterance, as much as in the drawing of implicatures on the basis of this. This is in fact quite predictable given the RT conception of context as mutual cognitive environment and of communication as the manipulation and refinement of assumptions within this. On this basis, one should not expect acts of communication to fully encode propositions, but rather to provide sufficiently detailed pointers to enable addressees to *identify* relevant (propositional) assumptions and to construct new ones on the basis of these.

The conventional position that associates truth-conditional and encoded meaning and views inference as operating only on fully-formed propositions must therefore be abandoned. The RT approach concentrates instead on the difference between explicit and implicit communication, employing the term 'explicature' for explicitly communicated assumptions, to complement the existing term 'implicature'. Both refer to propositional assumptions that are communicated in context. The same principles of relevance-based reasoning are taken to be involved in the derivation of both, since the same process of manipulating mutually manifest assumptions must be involved in identifying the communicator's intentions at both levels. The crucial difference between explicatures and implicatures is that the former involves a mixture of decoding and inference, while the latter are purely inferred. According to this perspective, examples like those in (2.2) highlight the inferential element in the derivation of explicatures.

The example of conjunction

Lest it should be thought that the need to contextually enrich the encoded part of utterances like those in (2.2) is due to some property of referring expressions, it is worth also reviewing Carston's (1988,1993) analysis of the various meanings associated with conjunction by *and* in English (see also Marten 1999). After all,

this concerns what is often thought of as a natural language equivalent of a logical connective. If inference informs truth-conditions even in relation to this, it may be expected to permeate most parts of the grammar-meaning relationship.

As well as expressing logical conjunction, *and* (like the co-ordinating conjunctions in many languages) can be used to express a temporal progression of events, as in (2.3a), which is generally understood as conveying that the first conjunct in the sentence is also chronologically the first eventuality of the two mentioned. This is seen also in (2.3b), which in most contexts would also communicate a causal relationship between the conjuncts. Other forms of temporal relationship are possible, however, such as simultaneity (2.3c) and temporal containment (2.3d).

(2.3) a. She gave him her key and he opened the door.
b. She became an alcoholic and her husband left her.
c. Mary was in the kitchen and she was listening to the radio.
d. He slept deeply all night and dreamt that he was flying.

Carston rejects the possibility that *and* is multiply lexically ambiguous, given the variety of meanings involved in these examples (which do not exhaust the shades of temporal and causal meaning; 1988:159) and the intuition that the reflection of temporal ordering and patterns of causation in the linguistic presentation of eventualities is likely to relate rather to properties of human cognition that to the encoded meaning of a single connective.

The difference between *and* in (2.3a,b) and *and* in (2.3c) is therefore not encoded, so must be inferred. At the same time, however, Carston shows that the inferred temporal ordering in (2.3a,b) should not be thought of as implicature. That is, the inferred part of the meaning is not an implication drawn on the basis of a propositional form that has been communicated in context, but is demonstrably a part of the propositional form communicated. This is shown by (2.4).

(2.4) It is not the case that she became an alcoholic and her husband left her, but rather that her husband left her and she became an alcoholic.

Were the temporal aspect of the meaning of *and* a matter of implicature, acting above and beyond the propositional form expressed, (2.4) should express a contradiction. Instead, it is understood as a perfectly coherent contrast between two different propositions (referring to different orderings of two events), so the temporal contribution of *and* must be considered part of each proposition.

2.2.2 RT and syntax

While RT thus emphasises the role of inference in helping to create truth-conditional meanings, the majority of work in RT assumes a fairly traditional (essentially Chomskyan) notion of the nature of syntax. That is, it is assumed that an autonomous syntactic module is responsible for deriving the surface forms of sentences and corresponding logical forms, though the latter will contain considerably more underspecified material than is usually presumed. As Marten (1999:174) points out, this leads to some inconsistency, since at least some applications of RT by necessity take surface forms, rather than logical forms, as the input to pragmatic reasoning. For example, Sperber & Wilson's (1986:202–217) analysis of information-structural effects (see below and Chapter 3) makes use of the incremental ('left-to-right') presentation of information and therefore is necessarily concerned with 'surface-level' word order. This is to be expected from the perspective of RT; after all, the order in which different expressions are presented to the addressee is one way in which a communicator can manipulate the access and juxtaposition of particular contextual assumptions and thereby provide a basis for the inferential recognition of intended meaning. Such analyses point to how RT may be employed within a different conception of the grammar; one in which the concrete properties of surface strings work together with inferential pragmatics to produce representations of propositional meaning without the intervention of abstract structural characterisations of sentences. These meaning representations are quite removed—by an indeterminate number of inferential steps—from any notion of the structure of natural language strings or representations of the meaning directly encoded in them.

Nevertheless, natural language sentences clearly have structure, in some sense, and this structure is clearly related in systematic ways to the interpretations given to utterances. If this is not to be thought of in terms of static structures that map onto semantic representations, it must be accounted for in other ways. The structural properties of sentences can instead be viewed as instructions for building propositional forms. To the extent that these are encoded in lexical items, they are in effect a sub-type of a form of encoding that is already recognised (though in a limited fashion) within the RT literature: procedural meaning.

2.3 Consequences of a parsing-based approach

2.3.1 Procedural meaning

The pervasiveness of pragmatic enrichment in the determination of propositional forms emphasises the point that linguistic forms are not ways of encoding propositional meaning, but prompts to the addressee to access appropriate contextual assumptions that play a role in interpretation. Given this, it is reasonable to ask whether some elements of natural languages might actually encode information that is not of a representational, semantic nature at all, but rather of a kind that directly signals the means by which the addressee should construct an appropriate interpretation. That is, *procedural* information might be encoded. This would clearly be an efficient part of a system of interpretation that necessarily involves layers of inference prompted by encoded information: effectively, the addressee can be spared the effort of certain inferential steps in establishing the relevance of some part of an utterance if the way in which it is to be made relevant is directly decodable from some other element of the utterance.

As Blakemore (1987:73) points out, something of the sort was in fact suggested by Karttunen & Peters's (1975,1979) analysis of discourse connectives like *therefore* and 'implicative verbs' like *manage* and *fail* as encoding Gricean 'conventional implicatures' (in a manner similar to Stalnaker's 1974 analysis of 'pragmatic presupposition'), but the existence of such elements in natural language is only explained by a cognitive theory of the role of inference in communication such as that provided subsequently by RT. Blakemore's own work concentrates on discourse connectives, many of which she gives purely procedural semantics. The contribution of the connective *so*, for example, is explicable in relevance-theoretic terms as "an instruction to interpret the proposition it introduces as a logical consequence" (Blakemore 1987:87). This minimal, procedural contribution is shown to be a sufficient basis for deriving a range of contextual effects and for explaining uses of *so* within a single speaker's discourse or in connecting the utterances of different speakers (see Blakemore 1987, §3.3).

Kempson's (1988) analysis of pronouns (see also Wilson & Sperber 1993, Kempson *et al.* 2000), as minimally restricted placeholder items that effectively encode the need to be substituted by some semantically contentful material, brings procedural encoding deeper into the grammar, though the encoding is still at the level of individual lexical items. Going further, there is no reason in principle why grammatical structures (however these are to be conceived of) should not also encode procedural

meaning. This is possible within frameworks like DRT (Kamp & Reyle 1993) and, as outlined in Chapter 4, it is in fact the position of Szabolcsi (1997b) (see also Beghelli & Stowell 1997) with regard to at least some of the surface configurations of Hungarian. Szabolcsi's assumption is that semantic procedures are encoded in LF positions, but the surface positions of Hungarian syntax are assumed within this work to be more or less identical to the respective LF positions. The procedures referred to are manipulations of model-theoretic semantic formulae and the assumption appears to be that these may be carried out quite independently of any inference-based pragmatic operations. In Chapter 4 I argue that a full characterisation of the phenomena that Szabolcsi (1997b) deals with requires the encoded procedures to be more general inferential procedures, since they interact with the production of focus readings in a way that is consistent only with the latter being the result of inference. In other words, the surface structure of Hungarian must encode not model-theoretic semantic procedures as such, but some more underspecified kind of procedure that is the basis of these and other effects, in different contexts. As for the further assumption that the surface positions of Hungarian reflect LF positions, this is redundant if the surface positions are analysable as encoding procedures for building an interpretation. The assumption that there is an additional mapping between surface forms and logical form before these procedures are recognised and applied is justified only by the desire to fit Hungarian surface structure into particular set of assumptions regarding universal grammar, by positing a level at which other languages resemble the surface structure of Hungarian—an idea for which there is scant independent evidence[8].

A further example of what is, effectively, highly underspecified encoded procedural meaning is suggested by Sperber & Wilson's (1986:202–217) discussion of information-structural meaning (for a further development along these lines, see Breheny 1998). Such meaning is argued to follow from inferences prompted by the

[8]Beghelli & Stowell (1997) use aspects of the *interpretation* of English, mainly with regard to quantifier scope, to motivate an LF that resembles Hungarian surface structure, but there is very little syntactic evidence to suggest that English word order maps onto such a structure in the ways assumed in generative syntactic frameworks. Rather, the assumption is that scope is to be represented at LF by c-command and therefore interpretive factors alone are sufficient to establish the dominance relations among various LF positions. This would make some sense in the dynamic approach advocated here, but if surface strings are assumed to have static structures, one would expect to have structural evidence for movements (or equivalent formal processes) between surface structures and LF. In any case, the coherence of scope as a single notion is questioned by Beghelli *et al.* (1997) even within the same volume of papers (see also Erteschik-Shir 1997 for suggestions that scope relations may be derivable from information structure) and in this context it must be considered unreliable evidence on its own for the shape of any LF representations. Furthermore, the parallels between Hungarian surface structure and the LF positions required by Beghelli & Stowell (1997) are far from perfect (Szabolcsi 1997b:120).

necessarily incremental presentation (and parsing) of lexical information and by the simple 'highlighting' effect of prosodic stress. Again, this kind of pragmatic argumentation has consequences for the analysis of the grammar, since in this case it leads to the rejection of information-structural primitives, such as [+topic] or [+focus] features. This line of analysis is particularly germane to the concerns of this thesis, since it involves both the influence of the 'left-to-right' incremental parsing of sentences, which will be developed as a crucial part of my approach, and the production of information-structural meaning, which is of clear relevance to the analysis of Hungarian. It will be considered in more detail in the discussion of focus in Chapter 3, section 3.1.2.

The generalisation of procedural meaning

Whatever shape grammar may have, the act of interpretation must involve a process of parsing. This is the point at which the possibility for various kinds of inferential process opens up: as the transition is made from one expression (even one lexical item) to the next, the addressee infers the possible grammatical and interpretive significance of the expression just processed and also how the processed information affects the context for parsing and interpreting what follows. Furthermore, parsing is a process that necessarily occurs in a broader, non-linguistic context, which vastly increases the basis for detailed judgements about the communicator's intentions.

It should be emphasised that even if one's theory of grammar assigns highly abstract structures to natural language strings, the act of parsing—of assigning these structures to utterances—must involve an attempt to infer the communicator's intentions in the context, just as much as the act of interpreting these structures must. Any theory must admit the possibility of ambiguity in surface forms (both lexical and structural) and it is clear that the recognition of the appropriate structure for a given surface form is dependent on what the addressee infers to have been the communicator's likely intention in producing the form in question (see Altmann & Steedman 1988 for evidence of context influencing parsing).

Given the thrust of my argumentation in section 2.1, this observation invites the question of whether the structural indeterminacy that in practice precedes the act of parsing from the point of view of the parser might not be in fact a characteristic of the grammar itself. I have argued that what may be gained from inference need not be encoded in the grammar. I have also argued that there are independent reasons to believe that the semantic representation of a propositional form constitutes the

only level of the grammar which by logical necessity must contain static representations (insofar as meanings are truly compositional). On this basis, it is possible that the structure of surface forms is underspecified at a grammatical level. Encoded information will then consist entirely in what is present within lexical items, which may be declarative semantic information, but may also be procedural and structural: that is, information that indicates how the incoming semantic material and, possibly, subsequent items are to be incorporated in the construction of a propositional form.

This brings us to the kind of approach to grammar envisaged at the beginning of this chapter: one in which surface forms are characterised as sets of instructions for the construction of semantic representations, rather than themselves being static, structured representations. Such an approach is appropriately characterised as 'dynamic', since it is based in the incremental elaboration of logical forms on the basis of real time parsing processes.

Under this approach procedural encoding becomes a central concept. Not only may certain interpretive procedures be seen to be encoded in linguistic forms, but all structural information is effectively conveyed as encoded procedures—specifically procedures in the construction of a propositional form[9]. Because of the interaction of this information with inferential processes, it may be heavily underspecified.

2.4 Some consequences of the dynamic approach

In this section I wish to draw attention to some of the features of the dynamic approach that are crucial to my analysis of the Hungarian data.

One fundamental change that is brought about by the move to a parsing-based approach is that the mere change in perspective opens up new forms of explanation for certain phenomena. In general, the relationship between string position and meaning is reversed relative to conventional generative approaches. In a framework like Minimalism, this relationship is effectively stated twice: expressions coming out of the lexicon bear certain meanings inherently (in the form of meaningful features), which cause them to move to certain positions in the sentence, but they are then interpreted at the interface with semantics on the basis of the position moved to

[9]Wilson & Sperber 1993 discuss different kinds of procedural encoding, involving procedures relevant to different levels of interpretation. They do not, however, consider the possibility that all structural information is encoded as procedures, but rather assume a more conventional view of syntax.

by LF. Despite this last step, it is clear that the feature-driven approach sees those aspects of meaning that are relevant to position as being fully determined in the lexicon—hence the use of a [+focus] feature in Hungarian, for example. In the dynamic approach, aspects of meaning can truly *result* from (relative) position within a sentence. It should be noted that this is not a mere difference in perspective, potentially on the same fundamental analyses: this aspect of the dynamic approach can lead to significant consequences both for the nature of the lexicon and for the analysis of what is or is not structurally encoded.

The point has already been emphasised that there are no fixed syntactic positions in the dynamic approach. This makes the notion of linguistic structure less abstract, but also more fluid in a number of significant ways. In general, the emphasis must change from which position in the sentence a constituent occupies to the relationships it bears to other constituents. Because structure is encoded in terms of instructions for creating meaningful representations, such relationships cannot necessarily be consistently identified with properties of the surface string, perceived as a static object. One would certainly expect there to be consistent signals identifiable within the surface string, but these must ultimately be characterised in terms of the ability to make a contribution to the construction of a propositional form. For example, adjacency could be involved in signalling some aspect of interpretation, but the strictness of any adjacency requirement may depend on the kind of meaningful effects prompted by it and the particular items that enter into it, as well as the effect of preceding linguistic material. Similarly, the co-occurrence of two constituents in a certain relative position (such as pre-verbally) cannot on its own be taken to signal that they do or do not share some significant relationship to some other item (such as the verb); instead it is the particular contribution that each makes in this relative position to the dynamics of building an interpretation that defines their import. These matters all have consequences for the analysis of negation and focus in Hungarian, as shown in Chapter 7.

In general, the lack of abstract syntactic positions reduces the number of different meaningful relationships that can be posited at a grammatical level. Prosodic information can supplement simple linear order to distinguish certain kinds of grammatical relationship (such as the difference between constituents signalled by what is thought of as the Hungarian 'quantifier position', which may be linearly immediately pre-verbal, but is always prosodically separate from the verb, and the kind of pre-verbal constituents that cause a VM to invert when there is one), but generally surface word order allows fewer distinctions to be made than can be made with

arbitrarily many abstract syntactic positions. This is compensated for by the possibility of underspecification in both structure and interpretation. On the one hand, a single surface word order within some sub-string of the sentence may correspond to different possible parses (as in the case of English subjects versus topicalised NPs), which are distinguished either by subsequent structure or by contextual information. On the other hand, apparently diverse constituents with apparently diverse interpretive effects may prove to share a common, underspecified interpretive factor which explains their showing the same structural relationship in the surface string. This opens up the possibility of unifying the analysis of the many expressions that relate to common structural effects when they appear pre-verbally in Hungarian.

This follows from another important fact about dynamic, parsing-based grammars: the possibility of contextually-informed inferential processes at any point in the creation of meaningful structure. It is this that allows for the encoding of quite general interpretive notions, since the finer details of interpretation may be derived inferentially, prompted by particular constituents appearing in particular contexts.

Anticipating slightly the discussion of following chapters, this may be illustrated in the supposed 'dual nature' of pre-verbal prefix VMs in Hungarian (Piñón 1992, Dalmi 1998; see Chapter 1, section 1.3.1). Recall that this refers to their ability to take on a narrow focus reading as well as their usual 'neutral' reading as part of a complex verbal predicate in a topic-comment sentence, in the same pre-verbal surface position. The contrast is shown in (2.5).

(2.5) Mari felment a lépcsőn ...
Mari up(VM)-went the stair-on

a. 'Mari went up the stairs.'
b. 'Mari went UP the stairs(, not DOWN).'

In frameworks which assume that interpretations are created on the basis of static syntactic structures, and that focus is encoded as a primitive, it is necessary to posit a string-vacuous movement from one pre-verbal position (for VMs) to another, which is specified as the position of foci, in order to account for (2.5b). Once contextual factors are admitted into the process of constructing an interpretation, there ceases to be any need to complicate the grammar with formal machinery that exists only to distinguish these different readings. As shown in Chapter 5, a procedure can be associated with the immediately pre-verbal position that is

suitably underspecified to form the basis of both of the observed readings, leaving the distinction between them a matter of context.

In other words, what determines the production of interpretation (2.5a) rather than (2.5b) is the information manifest to the addressee at the point in the parse when the prefix *fel* is related to the tensed verb. If Mari's walking on the stairs is already under discussion at this point (that is, old but salient information), the assertion of her walking *up* the stairs specifically can only be made relevant as a contrast with existing assumptions about what happened or might have happened in this regard (for example, that Mari walked down the stairs). Hence the sense of contrastive focus emerges in this context without any need for it to be signalled grammatically. The next chapter will take up the discussion of focus in detail; the important point here is the fact that a single grammatical relationship may be associated with more than one interpretive effect, thus simplifying grammatical machinery considerably, provided that contextual information is accessible during the mapping from lexical items to meanings. This is natural from the perspective of parsing, but not within an approach that attempts to map lexical items to meanings via static representations of the structures of sentences.

2.5 The dynamics of interpretation

At the level of the kind of broad theoretical assumptions set out in this chapter, the kind of dynamic approach that I propose basically follows that of Kempson *et al.* (2000), who develop a formal framework, known as Dynamic Syntax[10], that incorporates the kind of structural underspecification and procedural encoding argued for above. I do not adopt their formalism in this thesis, since the analysis of Hungarian pre-verbal phenomena that I develop requires the use of forms of interpretive representation that are not compatible with the technical machinery so far developed in Dynamic Syntax. Work in this framework has mostly been concerned with developing the mechanisms of dynamic structure-building and for the most part assumes a relatively conventional, compositional model-theoretic semantics[11]. The relatively

[10] Earlier work (e.g. Kempson 1996; Tsiplakou 1998; Marten 1999) refers to the same framework by the name of 'LDSNL' (Labelled Deductive Systems for Natural Language).

[11] For example, work has been done on a variety of information-structurally significant left- and right-periphery structures (Cann *et al.* 2002), but this does not deal in any detail with how the discourse-related aspects of the interpretation arise. Tsiplakou (1998) goes a step further towards dealing with this question, in postulating that focus is a 'goal' of the parsing process (in a specific sense), in work on aspects of Greek syntax that partially mirror Hungarian. Much of my argumentation in Chapter 5, and the system of representation that arises from it, could be seen as making explicit why focus should be associated with this particular technical role.

free substitution of contextually-available referents for encoded metavariables represents a notable example of a necessarily inferential process on the interpretive side, but otherwise the majority of the work done in creating a propositional formula is by straightforward functional application, following the building of a hierarchically structured propositional form.

My analysis of Hungarian will involve the encoding of more radically underspecified kinds of meaning, whose more precise interpretive import can only be identified in context. This kind of move seems inevitable if the dynamic, procedural view on surface structure is to be maintained for languages like Hungarian in which a single surface word order phenomenon is associated with a range of interpretive effects—which, moreover, include information-structural phenomena and relatively vague notions like 'complex predication'. As such, the syntax of Hungarian may be seen as a motivation to exploit to the full the possibilities within the dynamic approach for inferential pragmatic procedures to be effective at any point in the construction of logical forms.

On the other hand, certain ideas that are encapsulated in the formalism of Dynamic Syntax are of crucial importance to my analysis. In particular, the parser's general goal of constructing a proposition, which is the initial stage in structure-building operations in Dynamic Syntax, plays a key role in the way my more fluid representations work and in the way that Hungarian is shown to produce an unexpected variety of interpretive effects from a single encoded procedure.

The representations that I do employ, in Chapters 5 and 7, are thus of necessity innovations and are intended to be rather illustrative of the systematic nature of the argumentation than formally thorough (though the techniques employed point the way to more serious possible formalisations of the kind of analyses developed here). Some may see this as unfortunate; however, I suspect that this enforced situation may be a good thing in itself. If the arguments of this chapter are correct, formalisation has tended to take the place of real analysis too often in linguistics. This is not to deny that formal rigour is in principle a necessary part of a broadly generative approach. However, there may be a good deal more reasoning to be done about the fundamentals of linguistic theory before detailed formalisations can truly be hoped to reflect aspects of human knowledge of language. One of the disadvantages of thorough formalisation is that it can lead one into concerns over the details of a given framework to such an extent that the bigger picture can be ignored. The perspective taken in this thesis is deliberately one of greater breadth than depth, in this sense.

Thus, as the remaining chapters of this thesis return to concentrating on the details of Hungarian syntax and its interpretation, it should be borne in mind that the analysis presented is intended not only to illuminate issues within the grammar of this language, but also to stand as an illustration of how a mentalist, generative approach to the study of knowledge of language can be successfully maintained without reliance on static syntactic representations and without banishing inferential pragmatics to the 'heterogeneous garbage can' of extra-linguistic phenomena.

Chapter 3

Focus

3.1 The nature of focus

The use of the word 'focus'—and a host of related terms from the domain of information structure—is notoriously variable in linguistic analysis. This in part reflects a variety of theoretical perspectives on the place of this kind of phenomenon in relation to grammatical modules. Within both 'formalist' and 'functionalist' literature, one may find information-structural properties treated either as being encoded in the grammar of certain (or even all) languages, or as being strictly extra-grammatical. Within approaches that locate these properties within the grammar, this may be a matter of the use of syntactic machinery, like features and projections (É. Kiss), or may involve the assumption of separate, specialised components of the grammar to deal with 'information packaging' (Vallduví 1992; Erteschik-Shir 1997; see section 3.1.2). 'Focus' may be strictly defined in semantic (and/or 'formal pragmatic'; Kadmon 2001) terms, as in Rooth's (1992) 'alternative semantics' approach, or may refer to more intuitive concepts such as 'newness' or 'assertion'.

There is one area of potential confusion arising from the uses of the word 'focus' that can be prevented from the outset: that caused by the use of the term 'focus' to refer to both a property of interpretations (and/or its syntactic encoding) and the phonological phenomenon of primary stress (where the latter may or may not be seen as a straightforward signal of the former). I shall reserve the word 'focus' for the interpretive domain, using unambiguously phonological terminology ('stress', 'pitch accent') when referring to prosodic phenomena.

Many of the remaining issues surrounding focus will be touched upon in what follows. However, it is not my intention to provide in this thesis a full review of the

literature on focus, since it is not my aim to produce a general theory of focus as such[1]. Indeed, one conclusion which may be drawn from my analysis of Hungarian is that any such theory of focus is inappropriate, since I show (in later chapters) that the different kinds of focus that might be identified are emergent properties of somewhat different encoded notions processed in context, rather than any kind of primitive. Furthermore, a good deal of what is to be found in the literature on focus is straightforwardly incompatible with the dynamic approach to grammar that I employ.

Instead, I approach the notion of focus from the point of view of the Hungarian data, indicating along the way which existing theoretical concepts will be useful in this context, as well as my reasons for rejecting certain other existing ideas about focus. Nevertheless, I believe that a number of elements of the analysis that emerges from this strategy are relevant for the study of other languages and some cross-linguistic evidence will be invoked in support of this analysis. In particular, there is considerable discussion of focus in English, as manifested both in sentences of unmarked word order (where stress placement is associated with focus) and in *it*-clefts, which have been argued to parallel Hungarian pre-verbal focus to a great extent (É. Kiss 1998a). In sections 3.2 and 3.3, I investigate the basis of some of the parallelisms and distinctions that have been drawn between English constructions and Hungarian pre-verbal focus, though a full analysis of the English cases is beyond the scope of this thesis. Indeed, the emphasis in this chapter is generally less on the analysis of particular structures and more on the nature of the interpretive effects that they convey—in keeping with my arguments of Chapter 2, I show that this is a necessary preliminary to a truly explanatory analysis of (at least) any construction that is associated with a phenomenon like focus, which must involve reference to inferential processes performed in context (subsequent chapters present an analysis of the use of Hungarian pre-verbal position itself).

3.1.1 The encoding of focus in Hungarian

As discussed in Chapter 1, it is widely accepted within the syntactic literature that focus is syntactically encoded in Hungarian. That is, the emergence of focus readings (of a particular kind) as a result of the use of the immediately pre-verbal (VM-inverting) position is generally assumed to relate to the existence of an abstract

[1]See Vallduví (1992) for a thorough survey of the foundational literature on focus and other phenomena from the domain that he calls 'information packaging', including discussion of the diversity of terminology that accompanies the many different theoretical perspectives (on which see also von Heusinger 2002).

'focus position'; a syntactic position directly encoding the relevant kind of focus reading. In more recent work (following Bródy 1990), this is typically taken to be a designated syntactic projection 'FP' to which expressions bearing a focus feature must move before S-structure/Spell-out. Such expressions must then be assumed to have some fixed interpretive force at the interface with semantics.

Given the assumptions of conventional (static) syntactic and semantic approaches, which do not allow for a great deal of underspecification of structure or meaning, the encoding of focus in Hungarian seems a reasonable, perhaps inevitable, move. As shown by the data in Chapter 1, exhaustive focus readings systematically and obligatorily relate to word order in Hungarian and furthermore this phenomenon interacts with other syntactic operations, so that it is practically impossible to sustain an argument to the effect that focus readings are merely related by post-syntactic constraints to a subset of freely generated word orders. Thus it appears that the relation of focus readings to particular syntactic configurations is necessarily a matter of 'syntax proper'. The encoding of focus is therefore one way in which Hungarian is viewed as a 'discourse configurational' language.

The dynamic approach to structure and interpretation proposed in the previous chapter obviously does not allow for the postulation of a designated syntactic position for focus, since it does not recognise the notion of abstract syntactic positions at all. Discourse configurational phenomena could potentially be encoded within a Dynamic Syntax approach, if the idea that focus can be encoded as a primitive (at least at a semantic level) is carried over from the mainstream syntactic literature: by manipulating parsing strategies, any unique association of word order and meaning could be captured straightforwardly (as, for example, in the association of pre-verbal NPs in English with subjecthood).

In the case of Hungarian focus, however, the surface word order in question (the use of immediately pre-verbal position) does not uniquely relate to focus; other interpretive effects are associated with it under certain circumstances. Within a dynamic approach, these must include the effects associated with VMs, since these share a surface position (immediately preceding the verb stem) with focused items. In such a situation, an approach like Dynamic Syntax could resort to heavy underspecification of structure; essentially a multiple ambiguity story, postulating a variety of possible parses of the word order in question and relying on contextual factors to disambiguate. This would be to do little more than to use the parsing-based approach to ape a static syntactic analysis that utilises multiple syntactic positions. This would arguably be within the spirit of Occam's razor at a broad theoretical

level (i.e. employing parsing only, rather than grammatical representations plus a parser), but otherwise shows little advantage in employing the dynamic approach.

A much more interesting possibility opened up by the dynamic approach is that the variety of uses of immediately pre-verbal position in Hungarian relates instead to underspecification at the semantic level. This creates the possibility that grammatical operations are maximally simple, with the surface word order to a great extent unambiguously signalling a particular aspect of meaning. Investigating the possibility of underspecification in interpretation also represents a potential alternative to the view that focus should be considered a grammatical primitive. This is an undesirable view for independent reasons, as discussed in the following section.

3.1.2 Against encoding focus as a primitive

Whatever one's precise definition of focus (recall that I am discounting the use of the word in the phonological domain), it must have something to do with the perspective of the language user on certain parts of the information contained in an utterance. In this respect, the notion of focus is inseparable from the use of language—from context, in the broad, psychological sense employed in RT. It follows that the study of focus, as so many other aspects of the grammar, must involve careful consideration of precisely what is linguistically encoded and what derived from the application of general cognitive principles. The problem for any attempt to identify the encoded semantics of focus (assuming this is possible at all) is therefore parallel to the more general problem of determining the scope of syntactic theory, as discussed in Chapter 2. If one takes as one's starting point the aim of providing as full a characterisation as possible of the semantics of focus, one is likely to end up rather arbitrarily consigning some aspects of meaning to 'the pragmatic wastebasket' on the grounds of the limitations of one's theory, rather than on any principled grounds, leaving no guarantee that the resulting picture is at all psychologically realistic. As in the case of syntactic analysis, a truly well-motivated theory of focus must consider the other side of the distinction, what may be inferred, in order to determine what should be considered to be encoded.

Given the insight of RT that inference may contribute to the derivation of propositional forms, what it is encoded may be considerably more general than what is identifiable as 'the contribution of focus' through the method of comparing the intuitive or logical differences between the interpretations of different sentences. In

other words, this casts doubt on the research programme summarised by Rooth (1996:275) as follows:

> We somehow modify our way of modeling the semantics of phrases so that phrases differing in the location of focus have different semantic values. We then state semantic and pragmatic rules for focus-sensitive constructions and discourse configurations in terms of such focus-influenced semantic values.

Rooth himself worries, however, (1996:296) that it is not at all clear, on the face of it, to what extent 'discourse-configurational' phenomena like Hungarian syntactic focus share common elements with the more general notion of 'focus' that is associated with something like English prosodic main stress (Rooth's primary concern). Again, my response to this problem is that it can only be resolved by the investigation of all aspects of the interpretive effects associated with the respective phenomena—in particular, how they arise; not only how they may be captured in a semantic formula. Only by distinguishing in a principled way what is encoded in a given language from what may be inferred can one achieve a meaningful basis for the comparison of different linguistic systems. As it happens, (as I argue in section 3.2.1) Hungarian pre-verbal foci resemble certain uses of English phonological focus to a much greater extent than is generally recognised. This insight emerges, however, from consideration of inferential processes that both phenomena trigger, rather than by attempting to characterise 'the meaning' of each directly—indeed, attempts to characterise them in semantic terms seem to have led to the drawing of artificial contrasts between them.

Before passing on to my own, inferential account of the kind of focus that is associated with Hungarian pre-verbal 'focus position', it is worth briefly reviewing some of the more influential attempts to encode focus as a primitive, as these bring up some important elements of the ideas that I discuss below, even though their theoretical conclusions are different to mine. First, I outline Rooth's approach, which introduces the important concept of contextual alternatives to foci, and comment briefly on the approach known as 'structured meanings', which has little connection to my approach on a technical level, but reflects a certain insight that is picked up on in later chapters. Following this, I briefly sketch Vallduví's (1992) approach, along with the closely related ideas of Erteschik-Shir (1997), both of which involve a procedural form of encoded focus primitive. At this point, I offer only brief criticism of these approaches, as the contrasts between them and my account should

become clear as the latter is developed later in the chapter. Lastly, I discuss the RT-based accounts of English information structure of Sperber & Wilson (1986) and Breheny (1998), which are similar in spirit to the approach that I take to focus, but inadequate for the analysis of languages like Hungarian.

Rooth's 'alternative semantics'

According to Rooth, the function of focus (as signalled phonologically in English) is to evoke sets of alternatives to the focused item. For Rooth this is a semantic phenomenon and he introduces a novel kind of semantic representation to handle the effects of focus: the 'focus semantic value'. This represents the set of propositions that are consistent with the semantic representation of the sentence with the focused item abstracted over. The focus semantic value of a syntactic phrase ϕ is written $[\![\phi]\!]^f$, so the focus semantic values of sentences that differ only in the placement of focus can be given as in the following examples (from Rooth 1996, 277).

(3.1) $[\![\text{Ede wants } [\text{coffee}]_{\text{F}}\ ]\!]^f$ = the set of propositions of the form "Ede wants y"
$[\![[\text{Ede}]_{\text{F}} \text{ wants coffee}]\!]^f$ = the set of propositions of the form "x wants coffee"

Focus semantic values exist alongside 'ordinary semantic values' (written $[\![\phi]\!]^o$), the usual semantic translation of a syntactic phrase with nothing abstracted over.

In the original (1985) version of Rooth's theory, focus directly evoked focus semantic values. The more recent (1992) version of the theory recognises that pragmatic factors are involved in establishing the actual sets of alternatives that are evoked with any particular use of focus. In this version of the theory, the signalling of focus introduces a covert operator, $\sim$, whose function is to restrict the set of alternatives according to independent factors present (explicitly or otherwise) in the discourse. Below (section 3.2.1) I argue that this operator is redundant, given an adequate pragmatic theory: since (as RT emphasises) the interpretation of any utterance necessarily involves inferential steps to establish the relevant immediate context, there need be no operators at the level of semantic representation to do this job in relation to individual phenomena.

As for the more fundamental idea of encoding the evocation of alternatives, it is clear that Rooth identifies in this way an important aspect of many kinds of focus reading, as will be clear in the frequent reference to sets of alternatives in the presentation of my own position on the nature of (certain kinds of) focus, below. However, a cognitive, inferential perspective on pragmatics such as that

of RT suggests that Rooth's approach is somewhat inverted, in respect of any actual process of interpretation that is likely to occur. As Rooth's $\sim$ operator goes some way towards recognising, sets of alternatives feature in an interpretation (consciously or subconsciously) just to the extent to which the context implies their relevance; they cannot therefore be said to be encoded as such. Being a question of relevance in context, one need not in fact appeal even to the kind of indirect encoding that Rooth's (1992) theory represents. The assumptions that make alternatives relevant to interpretation simply arise according to general inferential processes, given the assertion of certain kinds of information in certain kinds of context, as will be argued in more detail later in this chapter.

Rooth's attempt to associate a fixed semantic interpretation with what he sees as a regular signal of focus, English main sentential stress, also leads to a curious state of affairs from a cross-linguistic perspective. While recognising that his account leaves the cross-linguistic picture far from clear, he speculates as follows (with particular reference to the example of Hungarian pre-verbal foci):

> it would be surprising if at least many of the things in the world's languages that we call focus did not turn out to have a common semantic and/or pragmatic core. ... Conceivably, ... the common core might turn out to be the weak semantics of the prominence feature [i.e. what is expressed by the use of primary phonological stress—DW] in English, with some constructions and morphemes expressing additional semantic content—such as existential presupposition or exhaustive listing—in addition to and in terms of the basic semantics. (Rooth 1996:296)

This invites the question of what could be involved in the production of 'exhaustive listing', above and beyond the assertion of an object in the context of its alternatives. While different kinds of exhaustive reading undoubtedly can be identified, all can be shown to result from the same basic (pragmatic) process (see section 3.2.1). Furthermore, there is a much greater overlap than is usually recognised between constructions like Hungarian pre-verbal focus and English *it*-clefts, on the one hand, and the expression of certain kinds of focus within unmarked English word order, on the other: all means of conveying focus produce a range of effects according to context, even though the form of certain constructions may restrict this range considerably. Attempting to characterise 'the semantics' of one such means of signalling focus and to relate the others to this is therefore likely to result in inaccuracies and

in missing broader generalisations. These points are argued in more detail later in this chapter.

Structured meanings

Another approach to focus that relies on the existence of focus primitives in the grammar is that of 'structured meanings', wherein the semantic effect of identifying focus on a particular expression is to prompt lambda-abstraction over that expression, thus creating a structured propositional representation (for presentation of the approach and critical comparison with Rooth's 'alternative semantics', see von Stechow 1991a; von Stechow 1991b; Kratzer 1991; Rooth 1996). For example, (3.2b) is given as the structured representation of the sentence (3.2a), in which *Bill* is marked with a focus feature within the syntactic representation (see von Stechow 1991b, 44).

(3.2) a. John only introduced Bill_F to Sue.
b. $<\lambda$x [introduce x to Sue], Bill>

The approach known as 'structured meaning semantics' assumes that such representations are read off the LF representations of a syntactic module such as that of the Principles and Parameters framework. This approach is therefore based on syntactic 'focus movement'. Given the arguments of Chapter 2, this is clearly not an approach that I would adopt, but it is now in any case widely recognised (Rooth 1985; von Stechow 1991a; Kratzer 1991; Horvath 2000) that, given internal theoretical considerations of mainstream syntactic theory, syntactic movement cannot be the basis for a general, cross-linguistic account of focus, because 'focus movement' would violate most of the principal constraints on movement operations recognised in mainstream syntactic frameworks (such as island constraints). As for languages like Hungarian, which are generally seen as 'discourse configurational', and hence as involving a certain kind of overt 'focus movement', structured meanings are not usually accepted as the semantics relating to this operation, because of the special properties that pre-verbal focus is perceived to have (section 3.1.4).

The intuitive basis of structured meanings may yet be useful, however. As Rooth notes:

> In the tradition of generative grammar, structuring as a semantics for focus was first proposed in Jackendoff (1972:245), but it can be viewed as reconstruction of the notion that intonation can have the effect

> of dividing a sentence into a psychological predicate and psychological subject ... or a theme and rheme (Rooth 1996:275)

The point need not be restricted to intonation. The idea of 'psychological predicate and psychological subject' and the potential for structured representations of propositions to reflect this will form an important part of my analysis of how the pre-verbal position in Hungarian comes to express a certain kind of focus, among other effects (Chapter 5).

Procedural encoding in an 'informational component'

Vallduví (1992; see also Vallduví & Engdahl 1996) and Erteschik-Shir (1997) (separately) propose another kind of 'semantics of focus', hence another way of characterising a possible focus primitive (though they might not employ this terminology, this is essentially the basis of these approaches). This is in some ways closer to the spirit of the approach argued for in this thesis, since they propose that focus (and/or other information-structural primitives) should be encoded as procedural information. Nevertheless, I do not adopt this analysis for a number of reasons, to be outlined below.

This approach conceives of information-structural primitives as instructions for updating a mental 'database' (Erteschik-Shir employs the 'file card semantics' of Heim 1982; Vallduví refers to a structured 'knowledge-store'). An expression marked as Topic (of the kind represented by sentence-initial topics in Hungarian; 'Link' in Vallduví's terminology) is said to prompt the action of seeking and 'opening' a database entry with an address corresponding to the content of that expression. Material marked as Focus in this approach represents information that is to be added to the 'database'. In the presence of a Topic/Link, Focus material is added to the database entry opened by the former; otherwise it may be added under a 'temporary situation' address (Vallduví) or associated with a 'stage topic' (Erteschik-Shir). Non-topical, non-focused material (that is, 'thematic' material, such as the unstressed expressions following an instance of pre-verbal focus in Hungarian), marked with the 'Tail' primitive in Vallduví's approach, indicates exactly how Focus material should be added to a particular database entry: a Tail indicates that certain propositional material already exists under the address in question and that the Focus material must be added in relation to this (similar assumptions exist in Erteschik-Shir's system, though she does not refer to a corresponding primitive).

Such instructions certainly relate to procedures that must occur at some level in the processing of linguistic information and clearly capture important insights about the nature of information-structural phenomena. In this respect, I consider this kind of procedural approach to have considerable advantages over the programme described in the quotation from Rooth, above, to characterise 'the semantics' (in a model-theoretic sense) of information-structural elements. Indeed, I assume in the account developed in this chapter that focus, in its broadest sense, is essentially a term that describes the parts of utterances that are responsible for adding to an individual's store of propositional information. Where I do not follow Vallduví and Erteschik-Shir is in the assumption that linguistic phenomena that relate to focus in this sense are necessarily instructions to perform this procedure. This is not a logically necessary conclusion to draw. They may be instead (at least on occasion) reflections of this procedure, or they may encode or reflect other procedures whose performance results in the effects of the procedures described by Vallduví and Erteschik-Shir. In other words, the proposed instructions for processing information may be in some contexts unnecessary (the different informational status of different expressions being evident from context alone) or may be an emergent property of more basic procedures that are linguistically encoded.

By assuming that these particular, database-manipulating instructions represent the basic level of information-structural encoding, Vallduví and Erteschik-Shir effectively remove any possibility of explaining at any more fundamental level why certain linguistic forms relate to certain ways of passing information. They are forced simply to assign their information-structural primitives to expressions appearing with certain grammatical phenomena, leaving little or no room for the investigation of how more detailed aspects of procedural meaning (in terms of the particular cognitive effects achieved in particular contexts) are associated with these phenomena.

Potential problems of this nature are illustrated by the change in position on cases of 'exhaustive focus' (such as that associated with Hungarian pre-verbal foci; see section 3.1.4 onwards) between Vallduví (1992) and Vallduví & Vilkuna (1998). Despite Vallduví's (1992:139ff.) producing strong evidence against the encoding of exhaustivity (see section 3.2.4), Vallduví & Vilkuna (1998) resort to a new primitive, 'kontrast' (as opposed to 'rheme', which covers roughly the old, purely updating function of 'focus'), to apply to those grammatical constructions, like Hungarian pre-verbal focus, that appear regularly to do something more than simply add information to a 'knowledge-store'. In this chapter, I will argue that Vallduví's

(1992) position is in this respect more empirically and theoretically supportable, notwithstanding the existence of such constructions; his being led astray into the encoding of exhaustivity must from this point of view be seen as a consequence of attempting to relate apparent grammatical constructions too directly to pre-defined (albeit intuitively insightful) primitives, at a fairly arbitrary level of analysis.

A further drawback, other things being equal, of both Vallduví's and Erteschik-Shir's approaches is that they necessitate the assumption of a specialised component of the grammar to deal with information structure (proposed as a post-LF component, in order to be compatible with conventional generative assumptions). One must question whether any proposed new component of the grammar makes for a parsimonious and coherent overall theory, something that is not clearly the case when an information-structural component is assumed alongside a (necessary) general theory of pragmatics.

For these reasons, I pursue an alternative line in my own account of the information-structural concepts that are necessary for the analysis of Hungarian pre-verbal foci; one that pays more attention to the cognitive effects produced by different linguistic phenomena in different contexts—and indeed to the kinds of contexts that certain phenomena can be considered to construct in the course of interpretation[2].

A dynamic, RT approach to English

One existing account of information-structural interpretation that is much closer in spirit to that of the remainder of this chapter is Sperber & Wilson's (1986) RT analysis of how notions like 'topic' and 'focus' arise in the course of parsing an English sentence, which is developed further by Breheny (1998)[3]. This is inherently dynamic in approach and, at least in Sperber & Wilson's case, eschews the idea of grammatically encoded information-structural features, in favour of consideration

[2]That the kind of procedural approach described in this section is nevertheless a potential source of a variety of fruitful insights is suggested also by Erteschik-Shir's observations about the close links between information structure and elements of what is normally thought of as logical scope (such as quantifier scope). Reversing normal syntactic assumptions about such links (where they are recognised at all), Erteschik-Shir argues that scope relations are read off information-structural marking (at Erteschik-Shir's post-LF level of 'f-structure'), rather than being determined by abstract hierarchical syntactic relations. Whatever the benefits or drawbacks of Erteschik-Shir's particular proposals, it seems to me that questioning the unitary nature of 'scope' opens up an important line of research. Beghelli *et al.* (1997) in effect raise this question on purely semantic grounds; given the theoretical perspective of RT or Dynamic Syntax it is surely worth asking to what extent scope-related effects may be derivable from factors pertaining to the dynamics of communication.

[3]This basis of this analysis is Wilson & Sperber's earlier (1979) attempt to explain presupposition in terms of 'ordered entailments'.

of the cognitive effects of processing the elements of a sentence in a linearly ordered string, in conjunction with a very general, procedural notion of the function of primary stress.

The essence of the analysis is that stress indicates information to which the addressee is intended to pay particular attention (Breheny draws an analogy to physical pointing as a way of making the purpose of an utterance manifest). Primary stress is thus associated with the main assertion of a sentence. In line with general RT reasoning, the role of other parts of the sentence is to construct the appropriate context for the interpretation of this assertion that will produce the desired cognitive effects. This is not stipulated in any way, but follows from the assumption that inference regarding the possible relevance of incoming lexical items occurs during parsing (as Sperber & Wilson note, this is to be expected, given the potential it introduces for increasing the efficiency of parsing in the face of possible ambiguities). Given this, each word parsed can be expected to prompt an 'anticipatory hypothesis' about the logical form of the utterance. Thus, a person hearing the word *Jennifer* as the beginning of an utterance, having assigned a referent to the name, is likely to construct an anticipatory hypothesis along the lines of 'Jennifer did something', which in turn prompts the question 'What did Jennifer do?'; if the next word is *ate*, the hypothesis 'Jennifer ate something' is triggered. In a given context, either of these hypotheses may already have cognitive effects, or each may simply narrow down the context for the interpretation of the next item, in which case they are made relevant by virtue of reducing the effort required in interpretation. Sperber & Wilson refer to a hypothesis that achieves relevance though its own cognitive effects a 'foreground implication', while a hypothesis that contributes to relevance merely by reducing the effort required to interpret subsequent items is a 'background implication'. The location of focus is then definable as the point at which a foreground implication is produced; where a relevant statement is produced, rather than simply the preparation for one.

As Sperber & Wilson note, this predicts the unmarked nature of phrase final focus in English: "The sense in which it is natural for focal stress to fall at the end of the utterance, and hence for the background to be recovered before foreground is the sense in which it is natural to raise a question before answering it, or to communicate a complex piece of information step by step" (1986:211). As Breheny emphasises, the idea that a relevant proposition is established by the time a focus is encountered means that all context-setting material must be encountered before this point, so that post-focal material must be predictable in the context. This

accounts for the fact that early stress-placement in English tends to result in a contrastive focus reading of the stressed expression, with post-focal material acting as presupposed 'background' to it.

While the basic approach to focus as an emergent property of inferential processes matches my assumptions, Sperber & Wilson and Breheny's analyses of English focus clearly cannot carry over to the explanation of Hungarian PV focus, for a number of reasons. First, while expressions that appear after a PV focus are indeed predictable, presupposed material, primary stress is often followed by newly asserted material in Hungarian, since primary stress falls on the verb or VM in topic-comment sentences and this is often the second item in the sentence, following any overt topic. Second, as Sperber & Wilson recognise, their approach predicts that there should be something of a cline from topicality to focushood in many sentences, since there is no reason why an implication derived while parsing some sentence-medial item cannot contribute to relevance both by having some cognitive effects of its own and helping to construct the context for following material (this is implied in the way that each implication potentially sets up a question but also fills in some of the information sought by a preceding question). Yet Hungarian syntax requires that there be a clearer cut-off between what is considered to be 'in focus' and what is not. Post-verbal material in a topic-comment sentence (what É. Kiss 1998a calls 'information focus') has some intermediate status, it seems, but in this position it can have nothing to do with building context in advance of processing the primary-stressed expression. Lastly, Sperber & Wilson's and Breheny's work on English focus, like the other approaches reviewed in this section, cannot be expected to reveal anything about why items such as VMs, VM-less verbs and negation interact with the position of syntactically focused items in the systematic way they do.

Nevertheless, the RT approach provides a useful precedent, in investigating focus from the point of view of how linear processing in context influences the way different elements of a sentence affect each other's perceived information-structural status, and in thus deriving what other approaches tend to stipulate at some arbitrary level of semantic detail. Exactly what must be either stipulated or derived in the case of Hungarian PV focus is the topic of the next section.

3.1.3 The general meaning of focus (and presupposition)

It is well-known—if perhaps not always given appropriate attention—that the expressions that appear in the pre-verbal 'focus position' of Hungarian are not simply 'in focus' in any general sense that can be defined in terms of the contribution made to the discourse. The usual test for focus in this general sense is the use of a context-setting *Wh*-question, the part of the answer that replaces the *Wh*-word being considered the focus, as illustrated in the bracketing of the English examples in (3.3).

(3.3) a. What did Mary eat?
Mary ate [$_F$ an apple].
b. What did Mary do?
Mary [$_F$ ate an apple]

A 'context question' of this kind does not truly determine the context for interpretation, of course, since the context (as identified by RT) may involve all kinds of extra-linguistic information drawn from the interlocutors' mutual cognitive environment and is determined by the Principles of Relevance. The question test is still useful for the identification of a certain, general concept of focus, which I shall have cause to refer to in discussing Hungarian pre-verbal focus, although it is my purpose here to show that this concept has no direct grammatical reflex. A question may be thought of as making manifest the questioner's desire for a certain kind of information, and it is because of this rather direct connection to crucial elements of the mutual cognitive environment that a real or imagined question to which a given utterance provides a felicitous response can indicate something about the information structure of that utterance. Note that this perspective avoids a good deal of trouble compared to any attempt to define 'the semantics of focus', which must be made to fit with a theory of 'the semantics of questions'.

The part of an utterance identified by the *Wh*-question heuristic as being 'in focus' is roughly definable as the asserted part of the utterance. In other words, the focus is (or at least is presented as) the locus of information that updates the cognitive environment. It is important to note, however, that this 'updating' does not stop at adding information to a model of the universe, but works by triggering cognitive effects—which depend also on the context in which this update occurs. The rest of the utterance effectively serves to help construct the immediate context and is made up of 'presupposed' material.

I take 'presupposition' to be a purely pragmatic notion (thus broadly in the tradition of Stalnaker 1974). In RT terms, I use the word to refer to particular assumptions that manifestly have to be recovered from the cognitive environment in order to function as part of the immediate context for the interpretation of material asserted in the present utterance. As such, the prompting and identification of presuppositions occurs on the basis of the general relevance-based reasoning that, according to RT, underpins interpretation as a whole.

This is not to say that numerous phenomena often thought of as 'presuppositional' cannot be encoded, for example within particular lexical items. The important point is that presupposition should not be taken as necessarily a semantic notion, nor necessarily an encoded aspect of meaning[4]. Nor should the idea of pragmatic presupposition be thought of as merely a 'weak' (for example, cancellable) phenomenon, to be contrasted in this sense with a notion of 'real', semantic presupposition. Information that is inferred to be a *necessary* part of the context for interpreting some act of communication may be not be cancellable without creating incoherence, so there is little empirical basis for such a distinction, which arguably originates in the ways in which semantics and pragmatics are conventionally kept artificially separated and linearly ordered—see also section 3.3.

Even material that is not highly salient to the addressee at point of utterance may be 'accommodated' (Lewis 1979) as presupposed material, since the RT definition of manifestness—and hence of what may be considered part of a cognitive environment—includes assumptions accessible via inferential processes that use other manifest assumptions as premises (see Chapter 2). Indeed, even information previously not accessible at all to the addressee may be accommodated at the point of utterance, since elements of the incoming utterance help to construct the immediate context for its own interpretation, by making particular assumptions manifestly relevant. This means that, in principle, a communicator can, for particular communicative reasons, present assumptions that may be quite new to the addressee as if they were presupposed material.

The fact that an utterance may be analysed as involving a presupposition (in a cognitive sense) even when the prior context does not contain salient material that relates to this presupposition illustrates the important RT argument that the context of an utterance is a set of assumptions constructed during processing, not merely a quasi-model-theoretic 'state of affairs' that is specifiable in advance of the

[4]See Herburger (2000:13) for problems with using the semantic notion of presupposition in information-structural analysis.

utterance. It also shows the advantage of the RT notion of 'manifestness' (which includes contextually inferable assumptions) over simpler notions of prior knowledge, salience or accessibility in understanding the dynamics of interpretation: communicators are not restricted to utilising elements of a 'database' constructed by prior discourse, but may use a variety of means to indicate relevant assumptions—with a variety of resulting contextual effects.

3.1.4 What kind of focus is found in 'focus position'?

There is no simple 'focus position'

Clearly, the *Wh*-question heuristic does not yield just the elements that appear as pre-verbal foci. A question such as (3.4a) demands a response with a 'topic-comment' structure, in which everything other than the topic provides the information sought by the questioner and hence is 'in focus' in the general sense. Yet the felicitous response (3.4b) shows no use of 'focus position', according to the accepted diagnostics—the prefix VM *meg* remains pre-verbal and the post-verbal material will not be destressed[5]. Note that while the 'topic-comment' sentence (3.4b) contains what might alternatively be described as 'VP-focus', the Hungarian data would be unaffected by the use of a non-subject topic, as in (3.4c) (in answer to a question like 'What happened to the apple?'), so it is not the syntactic notion of VP, as [V+Object], that is significant here[6].

(3.4) a. Mari mit csinált?
Mari what-ACC did
'What did Mari do?'

b. Mari megevett egy almát.
Mari VM-ate an apple-ACC
'Mari ate up an apple'.

c. Az almát megette Mari.
the apple-ACC VM-ate Mari
'The apple, Mari ate it (up).'

[5]In a genuine dialogue, the topical subject would not be repeated (but rather dropped completely, Hungarian being a pro-drop language). But the point is not to present a realistic dialogue: the function of the *Wh*-question is simply to indicate the information-structural constraints on the felicity of the declarative sentence that it precedes.

[6]The difference in the form of the verb between (3.4b) and (3.4c) is unconnected to the word order: Hungarian has a 'definite conjugation' that is used whenever the verb's direct object is definite.

What this shows is that an expression that, like *egy almát* in (3.4b), is part of a 'broad focus' does not appear in the pre-verbal 'focus position'. Instead, it appears after the verb, which is itself part of the broad focus. The use of the pre-verbal position is therefore clearly not necessary to signal what in the sentence is focused, in the general sense of the word.

'Narrow' and 'broad' focus

In contrast to (3.4a), a question like (3.5a), which contains the verb and therefore does not require anything akin to 'VP-focus' in the response, is typically answered with the expression that replaces the *Wh*-word in the pre-verbal 'focus position'—thus *egy almát* in (3.5b) appears pre-verbally, causing the VM *meg* to postpose and the verb stem to be destressed. That is, the 'focus' as indicated by the context-question heuristic now coincides with the kind of meaning associated with the pre-verbal position.

(3.5) a. Mari mit evett meg?
Mari what-ACC ate VM
'What did Mari eat (up)?'

b. Mari egy almát evett meg.
Mari an apple-ACC ate VM
'Mari ate (up) an apple.'

This suggests that the notion of 'narrow' as opposed to 'broad' focus is somehow significant in the use of the pre-verbal position. It is hard to see how this could be encoded, however, since it is not clear how the distinction could even be defined in any rigorous fashion[7]. This is perhaps why the distinction has received remarkably little attention in the Hungarian literature, despite the suggestiveness of the contrast between examples like (3.4) and (3.5) (although see Szendrői (to appear) for some related discussion and Horvath (2000) for arguments based around slightly different definitions of 'broad' versus 'narrow' focus). This is perhaps also because of the general tendency to seek purely syntactic explanations for word order phenomena: if the assumption is that a syntactic explanation should be sought, only

[7] In section 3.2.3, I develop a technical definition (in terms of the presupposition of eventualities) of the kind of context that encapsulates the relevant notion of 'narrow focus', but this is not argued to be encoded as such, itself instead emerging from more general encoded factors (that are investigated in later chapters).

factors that are easily captured in syntactic terms are likely to be properly considered. Intuitively, the broad/narrow focus distinction is an interpretive rather than a syntactically-defined one.

Close consideration shows that there is indeed no syntactically-definable limit on the 'scope' (in terms of broad versus narrow) of a focus that is associated with use of the pre-verbal position, according to the context-question heuristic—even though there is apparently a structural restriction on the size of expressions that may appear there. In terms of actual word order, nothing bigger or smaller than a simple NP may occur in the pre-verbal position. Hence if a sub-part of an NP is a narrow focus, the whole NP is 'pied-piped' into the pre-verbal position, with stress shifted rightwards within the NP if necessary to indicate the correct scope of focus (3.6a) (see Kenesei 1998, Szendrői to appear). On the other hand, even a complex NP is too large for the pre-verbal position (3.6b)[8], necessitating alternative strategies, such as extraposition of any relative clause from within the NP, as in (3.6c), or some form of topicalisation-plus-reduplication strategy, as in (3.6d).

(3.6) a. Péter egy használt ′autót vett.
Péter a used car-ACC bought
'It's a used CAR that Peter bought [not a used caravan, for example].'

b. *(Azt) a nőt, aki a musicalt rendezte imádom.
That-ACC the woman-ACC who the musical-ACC directed-3SG admire-1SG

c. (Azt) a nőt imádom, aki a musicalt rendezte.
That-ACC the woman-ACC admire-1SG who the musical-ACC directed-3SG

d. A nőt, aki a musicalt rendezte, őt
The woman-ACC who the musical-ACC directed-3SG PRO(3SG)-ACC
imádom.
admire-1SG

Intended in b,c,d: 'It's the woman who directed the musical that I admire.'

However, the syntactically-definable restriction on occupancy of the pre-verbal position does not suffice to define the limits on what size and complexity of expression

[8](3.6b) is impossible on the reading in which the whole complex NP is interpreted as a pre-verbal focus—e.g. given the kind of context suggested by the question 'Who do you admire?'. This word order would be acceptable if the NP were given rising intonation, and the verb a falling pitch accent, but this would represent a quite different interpretation (specifically, with the NP as 'contrastive topic')

may take on the relevant kind of focus *reading*. Examples like (3.7b) show that a VP-sized chunk may take on a reading in which the whole chunk is treated as parallel to a narrow focus, rather than having a 'topic-comment' reading, if part of this chunk is in the pre-verbal position (hence this kind of example is sometimes described as involving 'projection' of focus from the pre-verbal expression to the bigger chunk).

(3.7) a. János a cikkeket olvasta (el).
János the articles-ACC read VM
'It's the articles that János read.'

b. János a cikkeket olvasta, és nem a fürdőszobában énekelt.
János the articles-ACC read and not the bathroom-in sang
'What János did was read the articles (it's not that he sang in the bathroom).'

This may appear to contradict my suggestion that the narrow/broad focus distinction is relevant to Hungarian syntactic focus. It is notable, however, that (3.7b) shows a marked reading, in the sense that a clear contrast with contextually accessible eventualities (generally made explicit, as in the clause in parentheses in (3.7b)) is required to make this reading accessible. The reading in (3.7a), on the other hand, would be derived in any other context, given this word order. At the same time, (3.7b) is not a normal case of 'broad' focus, as it requires not merely the context indicated by a question like *What did János do?* (cf. (3.4)), but a richer context containing some contextually accessible assumption(s) about what János did, which provides the point of contrast. This implies that there is good reason to maintain the idea that readings like (3.7b) represent some special process of reading a larger sized expression as if it were a truly narrow focus. A marked reading like this cannot be simply ignored, but it remains an interesting and potentially revealing question why use of pre-verbal position seems to be typically associated with 'narrow' foci, while a broad focus (as indicated by the context-question heuristic) is unmarkedly associated with a 'topic-comment' structure that does not involve the use of the pre-verbal position.

That (3.7b) is a possibility at all shows that the definition of the kinds of foci that may be associated with the PV position must make reference to some aspect of interpretation; it cannot be drawn in purely syntactic terms. Of course, some special syntactic operation of focus-feature projection or percolation could always be proposed, but, as Horvath (2000) points out with regard to Kenesei's (1995b)

ideas along these lines, any such move is essentially *ad hoc* and as such only serves to undermine the whole approach of accounting for the pre-verbal 'focus position' by purely syntactic means.

Can the apparently significant broad/narrow distinction then be captured at an interpretive level? It is notable that foci involving the tensed verb are generally 'broad' and of a 'topic-comment' type, rather than of the kind that employs the 'focus position'. That this is significant is also suggested by the very fact that the way of signalling the latter kind of focus is the use of a certain relationship to the tensed verb—this strongly implies that it is normal, in some sense, for the verb to stand outside of the syntactically focused expression. On an interpretive level, verbs and expressions containing verbs correspond to eventualities. This suggests that the place of (conceptualisations of) eventualities in relation to the information structure of the sentence is an important factor. This idea is developed below, the notion of narrow focus being related to the (pragmatic) presupposition of a particular eventuality, which is seen to underlie also examples like (3.7b). This view is presented informally in this chapter (section 3.2.3) and given a degree of formalisation in Chapter 5, through a dynamic extension of neo-Davidsonian semantic representation.

The data reviewed above point to a dynamic account whereby the production of a certain kind of focus reading depends on inferences triggered by encountering certain expressions, like entity-denoting NPs, at the point in the parse where the verb would be expected in a 'topic-comment' sentence. Note that this leaves open the possibility of further kinds of inference being triggered if other kinds of expression are encountered (and/or if the context contains certain kinds of assumption) at this point in the parse, hence the possibility that the PV position may be not only a 'focus position'. This is the essence of the approach that I develop below and in Chapter 5. In the meantime, another factor that is said to define pre-verbal foci must be considered and accounted for.

Exhaustivity: are there two kinds of focus?

The property usually identified as definitive of the occupants of 'focus position' is exhaustivity (see Chapter 1, section 1.2.2). Hence, the majority of recent analyses of Hungarian assume that it is this, rather than any more general notion of focus, that is encoded in the pre-verbal 'focus position'. This may be expressed via the assumption that there exist two quite distinct kinds of focus, one of which involves exhaustivity and is related to the pre-verbal position. Alternatively, exhaustivity

may be treated as a separate element of meaning that only indirectly relates to focus. The former position is given its most clear statement by É. Kiss (1998a) and Vallduví & Vilkuna (1998); the latter is explicitly argued by Horvath (2000). These positions may amount to the same thing, in the sense that they insist on the existence of two quite distinct concepts, whether or not the word 'focus' is applied to both. Many other analyses of Hungarian also refer to the exhaustive nature of preverbal foci, but without stating exactly what relationship, if any, holds between this and the more general notion of focus (i.e. that associated with the context-question heuristic).

The separation of exhaustive focus from other kinds of focus at the level of grammatical primitives allows for the derivation of correct associations of word orders and interpretations by standard syntactic means, but it creates potential problems if there are shown to be connections between the two kinds of focus. If they share certain characteristics either at the interpretive level or in terms of the ways they are signalled linguistically, the assumption of separate grammatical primitives not only looks poorly supported, but potentially obscures the nature of the processes involved in relating certain word orders to certain interpretations. In particular, the possibility that the two notions of focus are somehow linked by inferential processes should be considered, but is precluded by an analysis that posits separate primitives.

As Roberts (1998) points out, there are reasons to believe that the two kinds of focus are related both at the level of interpretation and in the linguistic properties associated with each in Hungarian. Exhaustive PV foci, just like those expressions that could be called 'information foci' by virtue of forming part of a broad focus (or 'comment'), are necessarily 'in focus' according to the context-question heuristic—that is, they are a proper subset of the things that can be called 'focus' by any discourse-based definition (or a part of one of these, in the case of an 'information focus' item). This is a strong indication that exhaustive foci are a special case of the more general notion of focus, rather than involving any separate grammatical primitive. In addition, both exhaustive and 'information' foci carry falling pitch accents in Hungarian (as is visible in Rosenthall's 1992 instrumental phonetic analysis; see also Kálmán 1985b). Exhaustive foci occupy the pre-tense position that always carries such an accent (whether this is on the verb stem, a VM or a preverbal focus), while in the case of 'information' foci the pitch accent surfaces on each post-verbal phrase (in contrast to the destressed post-verbal items that follow an instance of syntactic focus). Both of these observations suggest that the strategy

of simply declaring the two kinds of focus to be distinct kinds of phenomenon (and possibly assigning features on this basis) is over-simplistic. Making this distinction may facilitate a descriptively adequate derivation of observed correspondences between word orders and interpretations, but it ignores all potential explanatory factors that have to do with what the two kinds of focus share.

While I therefore do not assume that the sense of exhaustivity associated with pre-verbal foci is due to a grammatical primitive that drives the use of pre-verbal position, the association of exhaustivity with the kind of foci that appear there is clearly a phenomenon that requires explanation. In section 3.2 I present a pragmatic analysis that explains the sense of communicated exhaustivity as the result of inferences drawn in certain contexts, which in turn relate to the idea of narrow focus. Following this, in section 3.3, I discuss why this kind of pragmatic account has generally been erroneously assumed to be inapplicable to the explanation of the exhaustivity of Hungarian pre-verbal focus, a question that directly relates to the theoretical issues raised in Chapter 2 surrounding the definitions of semantics and pragmatics.

3.2 Exhaustivity as an inference in context

As the previous section suggested, there are reasons to believe that exhaustivity, far from being an encoded semantic primitive, results from inferences over focused material in a certain kind of context. This in turn appears to relate to the idea of narrow focus, since narrow foci are unmarkedly associated with the pre-verbal position in Hungarian that is also associated with exhaustivity.

The idea that exhaustivity arises inferentially may be typically ignored or rejected in the literature on Hungarian pre-verbal foci (for reasons discussed in section 3.3.1), but it is far from a new or unsupported notion. Pragmatic theories typically assume that something akin to exhaustivity is, thanks to inferential reasoning, the unmarked reading of assertions of individual entities. This follows from the well-known notion of 'quantity implicature', due to Grice (1975). While Grice's overall framework is subject to a number of significant problems, which affect his account of quantity implicature, RT provides a more solid theoretical basis to the notion of quantity implicature, which is subsumed as one of the effects of the general operation of the Principle of Relevance.

Nevertheless, it is necessary to go somewhat beyond the basic RT account of quantity implicature in order to explain why and how exhaustivity comes to be associated with the particular, generally narrow, cases of focus that relate to the use of the pre-verbal position in Hungarian. This involves careful consideration of the contexts that create these kinds of focus; in particular (as hinted above, in section 3.1.4), the involvement of a presupposed eventuality. These issues are discussed in detail in section 3.2.3. First, section 3.2.1 presents the reasons to believe that exhaustivity is the unmarked reading of certain kinds of assertion, then the explanations for this in terms of Gricean quantity implicature and its reformulation in RT are presented in section 3.2.2.

3.2.1 Exhaustivity as an unmarked reading

In this section, I show that exhaustivity is unmarkedly associated with narrow foci, thus preparing the way for an account of Hungarian pre-verbal foci whereby their typical exhaustivity is seen to be a consequence of other factors, rather than an aspect of meaning that is encoded in the grammar. For illustrative purposes, I shall concentrate in this section on simple cases of narrow focus, wherein a single NP is the only focused part of the sentence (further explanation of the role of 'narrowness' of focus being delayed until section 3.2.3).

In a nutshell, the logic of the arguments set out below is as follows. English examples show narrow foci to be unmarkedly exhaustive. This is shown in both intuitions regarding assertions made in controlled contexts and in the requirement for non-exhaustive narrow foci to be specially signalled by (at least) marked intonational patterns. The relevant notion of exhaustivity is not only strictly context-dependent, but dependent on a psychological definition of context (as mutual cognitive environment). It is based on the recognition of sets of alternatives to the focused item, which are entirely determined by relevance-based reasoning in context, requiring no encoding of the evocation of alternatives. Hungarian pre-verbal foci prove to share all the crucial features of English narrow foci, whether the latter are expressed in the form of a cleft or using unmarked declarative word order, leading to the conclusion that in Hungarian too exhaustivity is an unmarked property that results from general pragmatic processes. The notion that exhaustivity is encoded in a pre-verbal syntactic position in Hungarian therefore looks at best redundant.

Consider a simple English dialogue such as (3.8). Thanks to the context provided by John's *Wh*-question, the focus of Mary's declarative sentence is clearly on only the NP *a coffee*.

(3.8) *John*: What does Bob want?
Mary: (Bob wants) a coffee.

Intuitively, Mary's statement communicates that a coffee is *the* thing that Bob wants, out of all relevant possibilities. Were the dialogue in (3.8) spoken across a table bearing cups of coffee, cups of tea and assorted food items, John would be entitled to assume that Mary is communicating that Bob does not want any tea or any of the food. This is confirmed by the fact that (as any rational speaker of English would agree) were John to give Bob a coffee only to be told by Mary *I never told you Bob wanted only coffee*, then John would have every right to feel that Mary had been either deliberately awkward or had failed to communicate efficiently in the original dialogue[9]. Thus, the intuitive understanding of the narrow focus in Mary's statement is that it is an exhaustive assertion of what may take the place of x in the proposition 'Bob wants x'.

Note that the utterance in question in (3.8) is a simple, unmarked declarative English sentence. This not generally analysed as containing any encoding of exhaustivity and indeed there is no need to assume that there exists anything in the form of Mary's utterance to this effect. The fact that the context contains some manifest set of alternatives (in this case provided by the selection of food and drink present on the table, though even here it is of course a cognitive matter to identify this particular part of the physical environment as being relevant) is all that is required for the assertion of one member of that set to be taken as excluding the others. The precise nature of the reasoning behind this is considered in section 3.2.2; for now it is sufficient to note that it is based upon the assumption that the communicator

[9]Such situations can arise, of course, and it is one of the strengths of RT that it predicts both interpretations of them, including simple failure of communication. If it is manifestly the case that Mary is acting in a deliberately unco-operative manner, John may take assumptions about her attitude to him to be part of what is communicated by her latter statement. If, on the other hand, there is no such assumption manifest, it may be that communication has broken down due to the interlocutors' misjudging the nature of the mutual cognitive environment—for example, Mary may have considered it mutually manifest that only people's preferences in drinks were under discussion and that everyone present should be given food, but failed to realise that this assumption was not in fact manifest to John. As mentioned in Chapter 2, only a heavily inferential pragmatic theory with a psychological conception of context can explain how failures of communication are admitted by the same mechanisms that normally facilitate communication.

will not withhold any relevant information—and it is clearly relevant information to know when manifest alternatives to a focused item are in fact involved in the same eventuality.

Dependence on (psychological) context

Note that the pertinent notion of exhaustivity has little to do with model-theoretically definable truths. Exhaustive readings are only ever exhaustive with respect to contextually relevant sets of entities, whose membership depends upon contextually relevant assumptions[10]. Were John, in the same physical context, to precede his question in (3.8) with a declaration that there isn't much tea left, it might be considered mutually manifest that only drinks are relevant to the discussion, in which case Mary's answer would be considered exhaustive only with respect to the set {*coffee*, *tea*} and John would not understand her to have communicated that Bob doesn't want any of the available food.

This context-dependence of exhaustive readings is recognised also by those who would encode exhaustivity, or the evocation of alternatives, as in Rooth's (1992) adoption of the operator $\sim$, which prompts a search for a contextually-restricted set, or Szabolcsi's (1983) introduction of contextual indices into her semantic representations of what the Hungarian pre-verbal position putatively encodes. That the exhaustivity of Hungarian pre-verbal foci is clearly context-dependent in the same way as that of the English narrow focus in (3.8) can be illustrated with the following example from Szabolcsi (1983:139):

(3.9) [$_F$ Joseph Conrad] született lengyelnek.
Joseph Conrad was-born Polish-DAT
'It's Joseph Conrad who was born Polish.'

Clearly, it is extremely unlikely that any speaker would produce (3.9)—whether the Hungarian sentence or its English *it*-cleft translation—in order to communicate a belief that no-one other than Joseph Conrad has ever been born Polish. Rather, some relevant aspects of the context will make it clear that Conrad is asserted to be the only one of some particular restricted set of people to have been born with that nationality. The set in question might, for example, be any of 'great British novelists', 'British novelists of the nineteenth century', 'writers of English literature who

[10]Note that this does not rule out the possibility of certain sets that are manifest in any context acting as the set of alternatives to a narrow focus. One such set is the (infinite) set of numerals, which is manifest to all language users who can count. See below and Chapter 4, section 4.3.

were not first-language speakers of English', or indeed sets dependent on very particular conversational contexts such as the set {*Joseph Conrad*, *Jasper Conran*}. What will determine the actual set with respect to which the assertion of Conrad is taken to be exhaustive is a matter of the interlocutors' mutually manifest assumptions, concerning such matters as (say) the speaker's depth of knowledge of English literature, the current relevance of the issue of writing in foreign languages, or (in the last example) the prior assumptions of the addressee regarding the ethnic background of a well-known fashion designer (assumptions which the communicator recognises as originating in confusion caused by similar-sounding names).

The point of such examples is to emphasise not only that the sets with respect to which exhaustivity is understood are dependent on context, but that the appropriate notion of context is necessarily a psychological one of the kind employed in RT, rather than merely a physical 'situation'. Since this crucial element in the generation of exhaustive meanings depends entirely on interlocutors' mutually manifest assumptions, it seems sensible to investigate just how much of the phenomenon of exhaustivity can be accounted for in terms of pragmatic theory alone, rather than adopting the semanticist's strategy of attempting to capture as much as possible from the outset in model-theoretic formulae and resorting to *ad hoc* contextual operators or variables where this fails[11].

Alternatives emerge from context

The discussion of (3.8) shows further that the involvement of sets of alternatives in a given act of interpretation is itself entirely derived from inferential reasoning in context, contrary to Rooth's proposal to encode the construction of alternative sets in the 'semantics' of (phonologically signalled) focus. A dialogue such as (3.8) shows clearly that sets of alternatives can be manifestly a part of the context in advance of a statement containing a focus. It is therefore clearly not true in such a case that the relevant alternative set is evoked by the use of focus. In (3.8), the context in which Mary makes her statement includes not only the physically present alternatives on the table, but also the assumptions made manifest by John's question. Depending on other aspects of the cognitive environment, these might include, for example, 'John would like to know which of the available items to pass

[11] As suggested in section 3.1.2, such mechanisms should always raise the suspicion of some form of inverted reasoning, relative to any plausible cognitive processes. The need to 'encode context' (as through a special variable) in the analysis of any given phenomenon is a sign that the *generalised* context-dependence of linguistic interpretation has not been recognised and taken into account (see Chapter 2).

to Bob' or 'John would like to know whether to make more tea'. Such contexts necessarily involve the manifestness of certain relevant sets (in the first case, the set of food and drink items on the table, in the second perhaps only the set of available drinks). No encoded, semantic-level mechanism is therefore necessary to bring these alternatives into play, nor to link them to the interpretation of Mary's assertion: in a cognitive environment in which such a set of alternatives is already manifestly relevant to the act of communication that is taking place, the addressee (John) cannot help but reason about any assertion in the light of this set.

This is not to say that nothing at all is encoded, or signalled, by linguistic phenomena such as focus-related phonological cues in English utterances. This system of cues is complex and clearly relates to a variety of interpretive effects (see Steedman 2000a for a Rooth-style analysis that provides a useful descriptive overview); there is no need, however (at least for the sake of capturing exhaustive readings), to encode such ideas as alternative sets—it suffices simply that the addressee be able to recognise the asserted part of the utterance, as opposed to what is (pragmatically) presupposed, in order to ensure that the appropriate context is accessed and the appropriate inferences triggered.

It should also be noted that the creation of alternative sets by context-based reasoning alone does not rely in any way on the question-answer paradigm; this is simply useful for making the context (and consequently the information structure of the 'answer') explicit. That alternative sets are generated by contextual considerations alone is generally true, even when the context is more obviously constructed (in part) on the basis of the incoming utterance itself, rather than largely determined in advance by factors like a preceding question. Consider a slightly different dialogue, such as (3.10), in which there is no explicit *Wh*-question determining the narrow focus in Pete's statement.

(3.10) *Liz*: Someone should feed the tigers and the cheetahs. I wonder if Jake is around.
Pete: Jake feeds lions.

Intuitively, one way of understanding Pete's contribution to the dialogue in (3.10) is as a kind of correction, conveying (at least) the message 'There's no point wondering about Jake, because he does lion-feeding, not tiger-feeding or cheetah-feeding.' This kind of corrective reading is a sub-type of exhaustive reading, as it clearly involves the exclusion of alternatives (see also section 3.2.1, below), yet Pete's statement is in the form of a normal declarative sentence and there is no preceding *Wh*-question

to which the evocation of alternatives could be attributed. Furthermore, there is no general cultural assumption that no-one could or would feed more than one kind of big cat which could be said to explain the exhaustive reading independently. Both the evocation of alternatives and the exhaustivity understood with respect to them emerge, in fact, from nothing more than the general process of the addressee seeking to recover the communicator's intentions on the basis of relevance-based reasoning. This proceeds roughly as follows.

Liz does not ask what animals Jake feeds, but Pete's contribution (assuming an unmarked intonational pattern, with a sentence-final pitch accent) can still be read as containing narrow focus on *lions*—in confirmation of this, note that Pete's contribution could felicitously be changed to *It's lions that Jake feeds*, without changing the meaning greatly[12]. Liz's contribution makes manifest the assumption 'Jake feeds tigers', which has an entailment 'Jake feeds a kind of big cat'. Because it can be thus inferred from an existing manifest assumption, Pete is able to treat the latter assumption as being itself mutually manifest. Therefore, when Pete produces a sentence of the form *Jake feeds* x, one of the ways in which it may be understood is as a presupposed (manifest) eventuality description: effectively, a focus frame for the assertion of a particular kind of big cat. Certainly, this is (in most imaginable contexts) the only way in which Liz could make Pete's contribution relevant, once the whole sentence *Jake feeds lions* is processed. Given her own previous contribution and the hopes and intentions that it makes manifest, the only way in which this sentence has immediate relevance is with respect to Liz's implicit assumption 'Jake feeds tigers and/or cheetahs'. Therefore, the context constructed by normal processes of relevance-based reasoning effectively associates the set of alternatives $\{tigers, cheetahs, lions\}$ with the manifest eventuality 'Jake feeds x'. No special mechanisms of 'focus semantics' are necessary; instead, an interpretation involving alternatives is simply a step in the chain of inference that is necessary to access the optimally relevant interpretation of the utterance in question. With this 'corrective' kind of example, it is also fairly clear on an intuitive level how the simple existence of a relevant set of alternatives leads to an exhaustive reading—it is hard to see how Pete's assertion and its concomitant evocation of alternatives could be relevant *unless* the assertion were intended to contrast with the alternatives—but

[12]Nevertheless, as RT predicts, there would be some kind of extra cognitive effects associated with the clefted version, since this would involve more processing effort from the addressee. The precise effects involved would of course depend on the context. To give a likely example, one could certainly imagine contexts in which Liz is known to have a mental block about which animals Jake feeds, in which case the cleft structure, which embodies a necessarily narrow focusing structure, emphasises the evocation of the presupposed eventuality description 'Jake feeds x' and can be taken to communicate the Pete's exasperation at once again having to correct Liz on this score.

this process is not always so obvious. More detailed discussion of the derivation of exhaustive readings by pragmatic principles alone is provided in section 3.2.2.

Different contexts; different kinds of exhaustivity

There are noticeable differences between the kind of meanings invoked by the use of narrow focus in examples like (3.8) and (3.10). These illustrate an important theoretical point regarding the necessity to consider the origins of different interpretations, rather than merely attempting to characterise them in separate semantic representations.

These two simple examples involve the creation of quite different kinds of cognitive effect, despite the fact that (as shown in more detail in sections 3.2.2 and 3.2.3) these are prompted by the same basic inferential processes. In (3.8), there is an effect of strengthening the assumption 'Bob wants x' and, somewhat more significantly, there is likely to be some form of contextual implication—for example, to do with what John should do next, or whether John can afford not to make more tea. The most obvious cognitive effects associated with (3.10), on the other hand, involve the contradiction (hence intended elimination) of existing assumptions (and additional cognitive effects may well be triggered in the form of contextual implications). This is because the eventuality that Pete's assertion refers back to, 'Jake feeds x', manifestly relates in this context to beliefs and expectations held by Liz that contrast with the assertion that Pete makes.

As this description implies, the difference in meaning effectively originates in the particular role played by alternatives to the focus in a given context. The alternatives to a focus like that in (3.8) are not evoked as a salient part of the context: they are manifest in the context in the sense that they may be calculated, should their identity be (or become) relevant in some way (recall that the definition of manifestness includes what can be inferred from other manifest assumptions). Otherwise, they remain in the background, so to speak: thus, in (3.8) Mary is understood to be communicating that Bob wants a coffee and it is inferable for the sake of any contextual implications that John might draw (for example, regarding what John should pass to Bob) that Bob doesn't want anything else, but it is not (necessarily) taken to be a central part of Mary's meaning that, for instance, Bob doesn't want a sandwich. That is, the exhaustivity of Mary's assertion can be thought of as in some sense 'incidental', although (as the discussion above makes clear) it is clearly present. The set of contextually available alternatives, then, is not manifestly the

primary motivation for or the point of Mary's utterance, but it is an unavoidable part of the context of that utterance.

Exhaustive readings may involve still less salient sets of alternatives. This is likely to be true, for example, when the set of alternatives is one of the special cases whose existence is not dependent on a particular context. The (infinite) set of numerals, for example, is manifest to all numerate language users and does not change according to the assumptions manifest in a particular context (with the possible exception of the mutual cognitive environments of certain advanced mathematicians). If a numeral is narrowly focused, there will normally be some range of numbers, some sub-sequence of the infinite set, that forms the set of contextually possible alternatives to the focus, but the members of even such a relatively restricted range may be of extremely low salience: it may be quite large and/or open-ended and in any case does not have to be constructed in the course of processing, on the basis of context-dependent assumptions, as most other alternative sets must be. Precisely because of this relative independence from the context, the members of this kind of set are unlikely to be viewed as a central part of the message conveyed in a given context. Nevertheless, a narrow focus asserted against such an alternative set is interpreted as being exhaustive with respect to it, in the unmarked case. Consider (3.11).

(3.11) The exam was failed by SIX students.

Such an utterance may of course be produced in the context of a highly restricted set of manifest expectations or prior beliefs, creating an alternative set of the nature of $\{five, six\}$, as when the communicator is correcting the addressee's mistaken belief that only five students failed the exam. In this case there is a clear parallelism to examples like (3.10). On the other hand, the addressee may have reasons to be interested in how many students failed the exam (hence the availability of the presupposed focus frame 'The exam was failed by n students'), without having any prior expectations or beliefs about the actual number, other than the general range '0–[*the size of the class*]'. In this case, the involvement of alternatives is not felt to be a central part of the message conveyed—there is no particular expression of contrast with the other numbers in the given range—but the interpretation is nonetheless exhaustive. This is shown most clearly in the fact of the so-called 'scalar implicature' that *six* in (3.11) means 'exactly six', rather than 'at least six'. The relevance-theoretic explanation of scalar implicature is presented in section 3.2.2. What is of interest here is simply the fact that it occurs, and is clearly explicable

as a kind of exhaustivity—the exclusion of all alternatives to *six*, which includes all numerals higher in the scale—even though the alternatives in question are not perceived to be a particularly salient part of either the context or the meaning of the utterance[13].

Examples like (3.8) and (3.11), in which alternatives are merely an unavoidable part of the context, contrast with cases like (3.10), in which it is the very contrast with salient alternatives that makes the narrow focus relevant. This inevitably produces a sense that this contrast is itself deliberately communicated. Some issues relating to these different kinds of reading (and how they have distorted analyses of narrow foci) are discussed in section 3.3; for now, the important point is that it is the role of alternatives in the process of recognising the communicator's intentions that determines what precise kind of exhaustive reading arises; there is no reason to posit any differences in what is encoded.

This point is important because it exemplifies the potential dangers of a purely syntactico-semantic approach that attempts to match characterisations of 'observed meanings' directly with grammatical constructions (see Chapter 2). Attempts are sometimes made to identify sub-categories of focus according to the apparent impact they have in context, leading to the belief in some cases that, for example, 'contrastive focus' is different in kind to 'exhaustive focus' (see, for instance, É. Kiss 1998a) and to the proposal of other categories, whose theoretical status is not always clear, such as 'corrective sentences' (a category into which (3.10) would presumably fit). The temptation for the linguist faced with any such variety of meanings is to encode them separately, or at least to assume that one of them is necessarily encoded as such and the others derived somehow from it. This approach is apparently supported by observed tendencies for different constructions in different languages to be associated with different sub-types of exhaustivity. But these constructions must be analysed also in terms of the inferences that they tend to provoke, for one reason or another. Inferential pragmatic reasoning shows that such distinctions are at best descriptive labels for sub-categories of exhaustive reading, none of which is encoded as such.

[13]Szabolcsi (1997b) takes the 'exactly six' reading to be a different kind of phenomenon to more obviously 'contrastive' or 'corrective' cases of focus on a numeral, at least in Hungarian. She analyses the former as not syntactically focused at all, but rather moved to a different preverbal position that has exclusively quantificational significance. The recognition that all such uses of numerals are effectively just a special case of exhaustive narrow focus therefore removes an unnecessary complication of the grammar. This issue is taken up in detail in Chapter 4.

This point also constitutes evidence against an approach like Rooth's, which seeks to characterise 'the semantics of focus'. Even assuming that one can somehow capture the necessarily context-dependent effects of focus within semantic representations, it turns out that one must ask not only 'what kind of focus?' but even 'what kind of exhaustive focus?'. Then, by characterising one kind or another semantically, one may do so at the expense of understanding more fundamental factors that link the different observed readings, as different facets of a single phenomenon. Certainly, Rooth's speculation that his semantics for English prosodic focus may underpin phenomena like Hungarian pre-verbal focus, given some added element of meaning encoded in the latter (see section 3.1.2), is unsustainable. Consideration of English examples alone shows that the supposed interpretive difference between these two focusing strategies is in fact found within the range of meanings associated with just one of them: English narrow foci expressed in unmarked word order. Furthermore, this range is explicable by a single pragmatic process, as applied to different contexts. Rooth's identification of alternative sets as a crucial part of the meanings associated with focus is clearly a valuable descriptive insight, but his concentration on semantic-level representations only confuses matters, leading ultimately to the incoherent position that something could be added to the notion of 'assertion in the context of alternatives' to produce the exhaustive reading associated with Hungarian pre-verbal foci. Exhaustive focus *is* assertion in the context of alternatives; it is hard to see how any added element of meaning could possibly be considered to make this definition more precise. Differences between what should be recognised as different kinds of exhaustive focus can be traced to the particular kinds of contextual relationship that the focus may bear to its alternatives, the identification of which is shown by the English data to depend on the dynamics of communication, not on what can be encoded in different grammatical constructions.

Non-exhaustive narrow foci are linguistically marked

Overall, what the English examples (3.8) and (3.10) demonstrate is that exhaustivity represents an unmarked reading that follows automatically, by inference, once the information structure of an utterance is recognised to involve narrow focus (note that while the previous section shows different kinds of narrow focus reading to exist, none of these are non-exhaustive, other things being equal). This is further confirmed by the fact that special forms of signalling are generally required if the assertion of an individual entity is to be understood as non-exhaustive—as, for example, when a non-exhaustive reply is given to a *Wh*-question. Frequently, explicit

phrases such as 'among others' are employed for this purpose; at the very least, special intonational signalling is required. A narrow focus asserted with the normal, falling focus intonation is typically taken to be exhaustive. If a speaker wishes to communicate that a narrow focus is non-exhaustive, the so-called rise-fall-rise tone is employed.

For example, imagine Mary's contribution in (3.8) uttered with a rise in intonation at the end of the word *coffee*. This would communicate to John that Mary knows that Bob wants coffee, but also that there may well be other things (from among the contextually available options) that Bob also wants. Depending on other manifest assumptions, John may understand from this more specific implications, such as that Mary expects, but doesn't know, that Bob wants something to eat, or that Mary does know of other things that Bob wants, but is for some reason deliberately withholding this information from John (perhaps to invite him to guess, for example).

Herburger (2000:50ff.) argues that this pattern can be reduced to the assumption that a falling tone indicates 'closure' or 'completeness', while a tone which ends in a rise indicates a sense of the utterance remaining 'open' or 'unfinished' in its relationship to the context. This is consistent with the kinds of interpretation associated with particular examples of narrow foci with rising final tones, such as those as discussed in the previous paragraph. There is a clear sense in which an utterance which presents itself as 'incomplete' or 'unfinished' is more marked than one which is presented as a complete contribution to a discourse[14].

In addition, note that unless the context contains a quite rich set of assumptions that lead to such an interpretation, Mary is likely to employ not merely a marked intonation pattern, but explicit explanation (e.g. *I know he wants coffee, but I don't know if he wants anything else*, or *He wants coffee, among other things*), in order to avoid the implication that her answer is exhaustive.

The crucial question, then, is whether Hungarian behaves in the same way. While consideration of the pragmatics of English examples suggests that exhaustivity should be considered an unmarked and inferentially derived element of meaning, this is not the view that is typically found in the literature on Hungarian 'focus

[14]Since it is not the purpose of this thesis to propose a full analysis of focus in English, I shall not develop Herburger's suggestions any further here, but note that they provide the basis for an entirely procedural account of the role of English intonation in relation to information structure. How far these ideas might go must be left to future research.

position'. In most work on Hungarian it is assumed that the use of the PV position to express focus is necessarily a more marked option than any alternative word order (the term 'non-neutral' being commonly applied to sentences that show use of the PV position). Hence the general assumption that something (such as exhaustivity) must be encoded in this position: the use of the position is viewed as adding something to what would be the unmarked interpretation of the sentence. This is a natural enough assumption within an approach that views the existence of immediately pre-verbal expressions as the result of movement operations. Under such an analysis, a special syntactic operation appears to be associated with exhaustive interpretations, which in turn supports the idea that exhaustivity needs to be specially signalled. It is generally not questioned within syntactic analyses whether this view on exhaustivity is compatible with pragmatic theory.

Conversely, non-exhaustive foci are said to be associated with an unmarked, post-verbal syntactic position. However, there is clear evidence that Hungarian in fact resembles English in treating non-exhaustive narrow foci as a marked option that must be specially signalled. This simply confirms the predictions of pragmatic theory: that exhaustivity is expected with a narrow focus unless it is either mutually manifest that the addressee does not expect an exhaustive assertion or it is made manifest by the communicator that he or she is communicating only partial information.

The relevant facts in Hungarian are in fact strikingly similar to those in English, despite the added complication of an apparent syntactic 'focus position'. Horvath (2000:201) comes close to saying as much in her description of non-exhaustive answers to *Wh*-questions, such as (3.12) (Horvath's (24); capitals indicate phonological stress)[15].

(3.12) Kit hívtak meg?
'Who did they invite?'

a. Jánost hívták meg.
János-ACC invited-3PL VM
'They invited JÁNOS (and nobody else).'

b. Meghívták *(például / többek között) Jánost.
VM-invited-3PL for.example / others among János-ACC
'They invited JÁNOS, for example / among others.'

[15]See Roberts (1998) for further discussion and exemplification of non-exhaustive focus. Roberts notes that many speakers describe examples of this kind as marginal, if acceptable at all.

Horvath notes (with an implicitly Gricean perspective) that

> Since the pragmatically "normal" way of providing information e.g. in contexts like (wh-)questions (as in [(3.12)]) is to be maximally informative, any time a less than exhaustive identification of the relevant entities is provided, namely when Focus is left in situ, as in [((3.12b)], in Hungarian, the sentence sounds well-formed only if some explicit indication of the given information being incomplete/non-exhaustive is provided (e.g., by adding 'for example' or 'among others', or at least some rising intonation on the listed element(s) signaling the list being unfinished due to problems with recall).

To this extent, the Hungarian situation appears to resemble that in English (even down to the use of rising intonation to signal an 'unfinished' or 'incomplete' act of communication). Horvath herself attempts nevertheless to link the Hungarian facts to the existence of an 'exhaustivity operator' which is said to determine movement to the pre-verbal position. She argues that the necessity to signal non-exhaustivity in Hungarian indicates that a syntactically encoded strategy "takes precedence over leaving the choice of exhaustive vs. non-exhaustive interpretation open for pragmatics". But if this were the case, one would not expect explicit signalling of non-exhaustivity to be a necessary, marked operation also in English, which (as Horvath convincingly argues) does not have any kind of syntactic encoding of exhaustivity or focus. In any case, it seems odd to argue that the obligatory signalling of exhaustivity should necessitate the signalling also of non-exhaustivity—one would rather expect it to remove this necessity, as the latter is then redundant. These problems are easily avoided by recognising (as pragmatic principles in any case suggest) that exhaustive interpretations are the norm—as implied by Horvath's own reference to what is 'pragmatically normal'. Thus, Horvath's argumentation illustrates the dangers of conventional syntactic assumptions that fail to take into account the role of pragmatics.

In addition, the above discussion illustrates the problem of referring to 'neutral word order' out of context. It may be true that an utterance containing a narrow focus could be considered intrinsically less 'neutral' than one with a topic-comment structure—in the sense that the former requires a special context that contains quite detailed presuppositions about particular eventualities—but an exhaustive interpretation still represents the most unmarked kind of narrow focus; that is, a

non-exhaustive narrow focus is far less 'neutral' still, though it shows no use of the immediately pre-verbal position.

Nonetheless, the fact that non-exhaustive narrow foci appear post-verbally might seem to be evidence in favour of the idea that exhaustivity is encoded in the pre-verbal 'focus position'. It might be argued that even if non-exhaustivity is in some sense marked, the data show that the pre-verbal position cannot be considered simply the position of narrow foci—if it were, non-exhaustive narrow foci would be expected to appear there too. The fact that they do not might then be put down to the pre-verbal position being after all reserved for (or only licensed by) exhaustive foci.

While a purely syntactic account could force this distinction in this way, any less stipulatory account (i.e. in the spirit of the theoretical assumptions set out in Chapter 2) must take account of the broader situation. One possibility is that the pre-verbal appearance of non-exhaustive foci is blocked for purely phonological reasons; an analysis that would clearly leave open the idea that the pre-verbal 'focus position' would otherwise be visibly the position of narrow foci as such. The rising pitch accent associated with non-exhaustive foci would effectively block the particular phonological relationship between pre-verbal expression and verb that is a necessary aspect of the PV configuration (as noted in Chapter 1, section 1.2.1). However, there is another side to the issue: since the arguments of this section show non-exhaustive foci to be marked both interpretively and structurally, one would ideally wish to identify a positive reason for their appearance post-verbally—despite the assumptions of certain syntactic accounts, there is no particular reason to treat the post-verbal domain as in some sense a 'default' position for all constituents. In section 3.2.3, I argue that it is no mere coincidence (nor in default of an unavailable pre-verbal position) that what I have been calling non-exhaustive narrow foci are presented in Hungarian as if they were broad foci; that is, following a stressed verb that is the first post-topic element, as if it were at the beginning of the 'comment' in a topic-comment sentence. As a result, far from providing evidence in favour of the encoding of exhaustivity in the pre-verbal 'focus position', the post-verbal appearance of non-exhaustive foci proves to support the dynamic perspective of the relationship between structure and interpretation: that interpretations arise on the basis of a left-to-right parse of the sentence.

The cross-linguistic data from exhaustive and non-exhaustive narrow foci suggest that there is a rather close parallel between narrow foci expressed in English sentences with unmarked word order, in which information structure is signalled only by phonological means, and Hungarian sentences which involve the use of the immediately pre-verbal position to signal narrow focus. This runs against the common belief, most explicitly presented by É. Kiss (1998a), that Hungarian pre-verbal foci represent something significantly different to any notion of focus corresponding to the simple use of pitch accents in English. As noted in Chapter 1, it is often claimed that sentences containing pre-verbal focus should be considered roughly equivalent to English *it*-cleft sentences, rather than to anything expressible using unmarked English word order. The reasoning behind this belief is mostly based in tests for the apparent logical properties of the different constructions. This is discussed and re-assessed below, in sections 3.3. Whatever the status of such tests, however, consideration of the communicative uses of PV focus shows that there is a great deal of overlap between this construction and narrow foci signalled by phonological means alone in English. This is important because the apparent contrast between these notions of focus is (even if often only implicitly) used in support of the idea that Hungarian pre-verbal focus represents a marked interpretation of some kind—that is, more than the simple assertion of a narrow focus—which in turn is seen to justify the encoding of some feature like exhaustivity in a pre-verbal syntactic position.

To question this contrast is not to say that pre-verbal focus in Hungarian has precisely the same range of interpretation as phonological focus in English, in all contexts. Clearly, there are reasons behind Hungarian-speaking linguists' intuitions that the *it*-cleft construction frequently provides the most accurate translation of PV focus. This is perfectly consistent with my pragmatic approach, which does not claim that there is a single, constant model-theoretic semantic effect signalled by either English phonological focus (as in Rooth's approach) or Hungarian syntactic focus (as in most analyses of this phenomenon). Under a pragmatic approach, it is therefore quite possible for the two phenomena to be used to express essentially the same meaning on some occasions without consistently corresponding to each other.

It does not follow, therefore, that the interpretation of the foci in Hungarian pre-verbal position and English clefts is significantly different in kind from that of

identifiably narrow foci expressed within English sentences of unmarked word order. Evidence that this is not the case is provided by contexts in which an unmarked English sentence is most naturally translated into Hungarian using the PV position—indeed where translating unmarked English word order otherwise, with the so-called 'neutral' order of Hungarian, would produce either a significant change in meaning or complete incoherence. In other words, the use of Hungarian pre-verbal focus covers a meaning space that includes meanings corresponding to both *it*-clefts and purely accent-based focus in English—a range of meanings that is best described as 'narrow focus'[16].

Examples of this can be found simply by considering the translation of (3.8) or (3.10), as in (3.13) and (3.14), respectively.

(3.13) *John*: Bob mit akar?
Bob what-ACC wants
Mary: (Bob) egy kávét (akar).
Bob a coffee-ACC wants

Ensuring the context by means of a *Wh*-question complicates things when it comes to Hungarian, since information explicitly stated in a preceding question would normally be entirely elided in Hungarian (so the natural answer in (3.13) would be simply *Egy kávét.* 'A coffee'). Native speakers agree, however, that the only full sentence that could be considered at all correct in such a context would involve the use of the pre-verbal position. As further confirmation of this, recall Horvath's examples in (3.12) and her comments on them.

This clearly contradicts the idea that the pre-verbal position is not used for simple assertions, but only for statements equivalent to those made using clefted sentences in English. To employ a cleft, as in *It's a coffee that Bob wants*, would not by any means be an unmarked way to answer John's question in (3.8)—indeed, it is difficult

[16]A strict distinction between Hungarian PV focus / English *it*-clefts and English purely phonological focus is often maintained on the grounds of certain differences in the logical implications of purely phonological focus, in particular regarding the survival of exhaustivity under negation, as briefly discussed in section 3.3.2. This is not the place for an analysis of English phonological focus, but there are certainly ways to deal with such data other than assuming a difference in syntactically encoded logical structure. One pertinent observation, in the light of the above reasoning, is the simple fact that while the syntactic properties of PV and clefting force a narrow focus interpretation, English unmarked word order is compatible with both broad and narrow focus readings–and even with phonology taken into account, one case (phrase-final stress) is information-structurally ambiguous in this way. Another important point is that the apparent logical difference may be at least in a part a reflection of the ways negation interacts with different structures and the connotations of this for interpretation in different contexts (see also comments in section 3.3.2)

to imagine any context that would make such an exchange felicitous[17]. It might be argued that the (relative) appropriateness of a pre-verbal focus is down to the fact that Mary's response is understood to be exhaustive, but the above discussion of the English version (3.8) (and the theoretical discussion in section 3.2.2) shows this exhaustivity to be derived automatically, on the basis of nothing more than the narrow focus structure that is imposed by the context. There is therefore no *a priori* reason to believe that the use of pre-verbal position in (3.13) is explained by the association of this position with exhaustivity as such.

The coincidentally awkward nature of a full sentence in reply to a *Wh*-question may have been in itself quite a significant factor in the development of existing analyses of pre-verbal focus: I would suggest that this is one of the primary reasons why Hungarian pre-verbal focus is generally thought of as non-equivalent to English phonological (narrow) focus. A *Wh*-question, in virtually guaranteeing a narrow focus interpretation, removes any need to disambiguate or emphasise the information structure of the utterance by means of special structures like an *it*-cleft. As such, it is one of the linguistic contexts in which unmarked English word order is most clearly associated with narrow focus and its attendant implications, notably exhaustivity. Since Hungarian PV foci are not visibly encountered in this kind of context, it is easy to concentrate on the common tendency for them to be translated most felicitously with clefts or other relatively marked constructions. It does not follow, however, that they necessarily have different encoded semantics to English sentences of unmarked word order, given that it is for independent reasons that the use of PV position is not commonly observed following an explicit question.

The translation of an example like (3.10) (repeated as (3.14a)), which does not involve a *Wh*-question, supports this point of view, in that a perfectly felicitous use of unmarked word order in English is seen to require the use of PV position in its Hungarian translation (no other word order would convey the same meaning). As noted in section 3.2.1, an *it*-cleft could be substituted for Pete's contribution in (3.14a), but the fact that it need not be shows that the contrastive meaning of the utterance is determined by inference in context and not by encoding. What is therefore shown by the obligatory use of PV position in the Hungarian translation,

[17]This is explicable in RT terms if one makes the assumption that the major purpose of the cleft construction is to ensure a narrow focus reading. Given that the context (with respect to information structure) is in any case so tightly defined by the preceding *Wh*-question, this means that the use of a cleft would basically demand extra processing effort without providing any obvious source of greater cognitive effects in most conceivable contexts.

(3.14b) (as in (3.12) and (3.13)), is that pre-verbal focus cannot be associated directly with the English *it*-cleft; it demonstrably covers also instances of unmarked English word order. This further erodes any analysis whereby the former constructions are claimed to encode exhaustivity, in contradistinction to English unmarked word order with pitch accents.

(3.14) a. *Liz*: Someone should feed the tigers and the cheetahs. I wonder whether Jake is around.
Pete: Jake feeds lions.

b. *Liz*: Valakinek meg kellene etetnie a tigriseket és a
someone-DAT VM should feed-INF.3SG the tigers-ACC and the
gepárdokat. Jake vajon itt van?
cheetahs-ACC Jake whether here is
Pete: Jake oroszlánokat etet.
Jake lions-ACC feeds

While it is far from impossible for what is inferred in one language to be encoded in another (one need only consider the encoding of progressive aspect in English, or the wide cross-linguistic differences between personal pronoun systems), the possibility of recovering the interpretation in question by inference alone at least means that an analysis involving encoding should not be the only, or even the first, one considered by linguists. This is not often taken into account in the literature, though not all analysts have simply ignored the possibility that the distinctive meaning of Hungarian pre-verbal foci is derived inferentially: in section 3.3.1, I review the discussion of this possibility by Szabolcsi (1981). This involves more subtle arguments in support of the idea that the exhaustivity of pre-verbal foci must be encoded, but these prove to rest upon unsustainable assumptions regarding the relationships between natural language sentences, inferential processes and truth-conditional semantics.

The examples presented in this section illustrate the dangers of approaching linguistic analysis with the assumption that syntactic configurations can be matched directly with representations of meaning, especially in a necessarily context-dependent domain such as focus. Viewed from a purely interpretive perspective, the idea cannot be sustained that English unmarked word order with the use of pitch accents represents one discrete form of focus meaning, *it*-clefts another, and so on. The precise interpretations associated with each construction will depend on the nature of the context in which they are employed; conversely, some kinds of interpretation may be available on one occasion through the use of one construction, while

on another occasion the use of some alternative formulation may be required to indicate the appropriate contextual assumptions. Meanwhile, Hungarian grammar is organised to its own particular principles (as analysed in following chapters), creating a certain degree of overlap between pre-verbal focus and both of the English constructions. There are certainly reasons why Hungarian pre-verbal focus most commonly tends to be identified with *it*-clefts, but these do not relate to grammatical encoding, at least where exhaustivity is concerned.

Having argued that exhaustive readings in both Hungarian and English are the unmarked case with identifiable instances of narrow foci, it is time to explain why this should be. The reasons are encompassed in a well-established pragmatic phenomenon: what Grice (1975) calls 'quantity implicature'. This idea is outlined in the next section in its best known, Gricean, form and is then given a more solid theoretical grounding in RT.

3.2.2 Quantity implicature

Grice's quantity maxims

According to Grice, inferential aspects of meaning are derived from the interaction of the encoded meaning of an utterance with the 'maxims' of communication that together instantiate the 'co-operative principle': "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (Grice 1975:45). The particular maxims that are of current concern are the maxims of quantity, formulated as in (3.15).

(3.15) 1. Make your contribution as informative as is required (for the current purposes of the exchange).
2. Do not make your contribution more informative than is required.

Exhaustivity is arguably derivable from the first of these maxims since in effect it demands that communicators hold no useful information back. If it is informative (according to 'the accepted purpose or direction of the exchange') for the addressee to be told the identity of one object that fulfils a certain role with respect to a given eventuality, then it is presumably similarly informative, and therefore similarly 'required', to pass on the identity of any further objects that share this role. At the same time, Grice's second maxim of quantity effectively serves to ensure that only contextually relevant objects that fulfil the role in question are taken into

consideration. For example, the utterance *It's Bill that I saw* will (in almost any imaginable context) be considered more 'co-operative' and felicitous than *It's Bill and the wall and the carpet and the dust on the mantlepiece* [etc. *ad infinitum*] *that I saw*, though the latter may be equally true in a given context. The latter utterance, however, gives more information than would be 'required' by a normal addressee for any normal purposes, and is therefore in contravention of the second quantity maxim.

Taken together, these maxims determine that if a communicator fails to mention all the contextually relevant objects that fulfil a role in which the addressee is interested, that communicator may be considered unco-operative. A context that produces narrow focus is one that makes clear that the addressee is (or should be) interested in the occupant(s) of a particular role. It follows that anyone obeying the first maxim of quantity will will make any narrow focus exhaustive.

Notice that this reasoning has almost the status of tautology (a fact that also carries over to the RT re-working of quantity implicature discussed below): alternatives that are relevant in the context must be either asserted or assumed to be unassertable on the grounds of being false (in the role in question) precisely because of their relevance. The assertion of an object with no relevant alternatives would be trivially exhaustive—and clearly not because of any encoded instruction to interpret exhaustively (even given the existence, model-theoretically, of other possible alternatives). This further emphasises the points made above regarding the redundancy of any attempt to encode the exhaustivity of narrow foci and/or to define alternative sets by means of *ad hoc* contextual operators or variables: the relevance of an alternative, as determined by independent aspects of the current context, is what makes it worth mentioning if it is true and this in turn is what gives addressees the right to assume that unmentioned items are not true (or at least that the communicator does not mean to give the impression that their assertion would be true). Conversely, sets of alternatives are identifiable (*post hoc*, by the analyst) on the basis of perceptions of what would have been worth mentioning, for independent contextual reasons.

While Grice's quantity maxims serve the purpose of conveying the intuitive basis of quantity implicature, the way in which they work illustrates one of the principal advantages of RT over Grice's approach. The quantity maxims—which are just two of nine maxims, grouped in four major categories—can be seen to deal each with one half of the problem of ensuring a relevant interpretation: the first maxim ensures that no information that would contribute to optimising the relevance of an

utterance is omitted; the second blocks the mention of irrelevant information, which causes unnecessary processing effort and therefore reduces the overall relevance of the utterance. This work is done in RT by the Principle of Relevance alone, and this deals with far more than quantity implicatures. Furthermore, the Principle of Relevance is derived from reasoning over basic assumptions about human cognitive priorities, in contrast to the specifically 'conversational' orientation of the Gricean maxims, which appear to be purposefully designed simply to plug certain gaps in the conventional code-based, truth-theoretic model of meaning and communication. It is noticeable that even the above discussion of the Gricean explanation of exhaustivity effects required crucial reference to the notion of relevance, which clearly calls for a theoretical basis to this notion.

In this sense, it is a general problem with Grice's framework that the number and nature of maxims seems somewhat *ad hoc* and the precise contribution of each rather vague. In the case of the quantity maxims, there is a clear problem determining what, even in principle, could be the definition of what is 'required' by any given conversational purpose (even if such a purpose is unequivocally recognised by all interlocutors). On the other hand, it is quite unclear what could be achieved by the so-called 'maxim of relation'—'Be relevant'—that is not already covered by the maxims of quantity.

Even abstracting away from the details of its implementation, Grice's approach rests on dubious assumptions. Communication is demonstrably not based on cooperation between interlocutors with some common purpose in mind. Being obstructive, offensive or deliberately misleading and a host of other socially uncooperative acts all involve successful communication, in the sense that an addressee recovers (at least) the message or messages intended by a communicator. The only common purpose that interlocutors need have is that of achieving communication, and this is not adopted as the result of following a string of stipulatory maxims, but rather follows from the reasons human beings have (and recognise in others) for paying attention to stimuli and making the effort to process them[18].

Grice's approach therefore seems quite inadequate on a theoretical level, though the quantity maxims do make clear the intuitive basis for an inferential explanation of the unmarkedness of exhaustive narrow foci. Happily, the notion of quantity implicature is easily subsumed within RT and thereby given a sound footing in better motivated pragmatic theory.

[18]See Sperber & Wilson (1986) for more detailed criticism of Grice's framework.

Unlike Grice, Sperber & Wilson (1995) derive quantity implicatures from general principles of inferential pragmatics (i.e. Relevance) rather than by invoking any specifically 'quantity'-based mechanisms[19]. I shall continue to use the term 'quantity implicature', purely as a descriptive label, to identify the particular cases of pragmatic reasoning under discussion, but it should be borne in mind that this term henceforth has no special theoretical status.

Sperber & Wilson do not discuss precisely the issue of exhaustive readings, but do cover the closely related notion of 'scalar implicature' (a sub-type of quantity implicature). This is exemplified by the common understanding of *some* to communicate 'not all'. This is such a regular aspect of the meaning of *some* that some post-Gricean pragmatists (for example, Levinson 1987) take it to be a 'generalised implicature': an automatic part of the meaning of the word, in the absence of evidence to the contrary. Sperber & Wilson show that no such specialised information need be posited in association with this particular (kind of) word, since the meaning in question is produced by general relevance-theoretic principles, in appropriate contexts. They discuss the example of Mary's utterance in (3.16) (Sperber & Wilson 1995, 277).

(3.16) *Henry*: Do all, or at least some, of your neighbours have pets?
Mary: Some of them do.

Given the immediate context of Henry's question, Mary's utterance would normally be taken to communicate that not all of her neighbours have pets. Sperber & Wilson show that this follows from the second clause of the (1995 version of) the Cognitive Principle of Relevance. Recall that this Principle (otherwise known as 'the presumption of optimal relevance'), is stated as in (3.17):

(3.17) a. The ostensive stimulus is relevant enough for it to be worth the addressee's effort to process it.
b. The ostensive stimulus is the most relevant one compatible with the communicator's abilities and preferences.

Clause (b) is the part that introduces the notion that relevance is optimised: out of possible utterances, *the most relevant one* should be chosen by the communicator,

[19] Wedgwood (2002) contains a brief account of quantity implicature couched in terms of the original (1986) version of RT. This is effectively parallel to the 1995-style RT account given here.

where relevance is understood in its technical sense, as a balance between cognitive effects and processing effort. This is necessarily understood relative to what the communicator can and will say (his or her 'abilities and preferences').

The presumption of optimal relevance has two main kinds of consequence. On the one hand, whenever an addressee is faced with an utterance that requires more processing effort than some alternative utterance, he is entitled to expect that the utterance produced carries richer cognitive effects than the alternative would have (and therefore the addressee will seek to identify these further effects). On the other hand, when a communicator chooses to produce an utterance that—by virtue of the information conveyed—is manifestly less relevant than an alternative utterance requiring similar processing effort would have been, the addressee is entitled to draw inferences about the communicator's ability or willingness to communicate the alternative, since this is the only way to maintain the presumption of optimal relevance.

As it happens, the particular case of (3.16) can be explained from either direction, because of certain manifest possible utterances with which Mary's actual utterance contrasts. Although this is not mentioned by Sperber & Wilson, Mary's utterance is manifestly one that requires greater effort than an obvious alternative reply. This is because the form of Henry's question is such that the answers *Yes* and *No* are manifestly possible, given a suitable context. The fact that Mary puts Henry to the effort of processing her complete sentence instead of simply the word *Yes* shows that (at least in Mary's eyes) the broader context must be one in which it is relevant to Henry to know not only whether pet-owners exist among her neighbours, but also whether or not it is the case that all of them come into this category (note that this is far from necessarily the case; Henry may well be interested in the mere existence of animals in the area, in other contexts). That is, a simple *Yes* would convey the message 'some and maybe all of Mary's neighbours have pets', so Mary's actual reply may be assumed to communicate more than this. The most relevant further cognitive effects in this case are those connected with her specification of *some* (and non-mention of *all*): the proposition 'some, but not all, of Mary's neighbours have pets' provides richer cognitive effects, since it provides information about a greater number of existing assumptions and therefore leads to a more extensive re-structuring of the mutual cognitive environment. It therefore justifies the relatively high processing effort required by Mary's utterance and is taken to be communicated by that utterance.

The explanation of (3.16) that is actually offered by Sperber & Wilson involves the second possible kind of inference. In the immediate context provided by Henry's question, it is manifest that Mary is producing the less informative of two possible positive replies (apart from *Yes*), which would each require essentially the same processing effort. That is, Mary chooses to say *some* where she might just as easily have said *all*, where *all* would have been manifestly more relevant to Henry, being more informative. Since Mary's utterance (as an act of ostensive communication) is nevertheless presumed to be the most relevant one compatible with her abilities and preferences, she thereby makes manifest that she is either unable or unwilling to produce the more informative utterance. Assumptions manifest in the context will point to which of these is the case and, if the former, which of two reasons apply: Mary may be unable to communicate something for lack of knowledge, or may be unable to communicate it because she knows it to be false.

Whichever explanation is preferred for the particular case of (3.16), the latter is more germane to the explanation of the unmarkedness of exhaustivity. As Sperber & Wilson argue[20]:

> Mary's answer in [(3.16)] is a case where the speaker has deliberately chosen to express a less informative proposition when a closely related, equally accessible and more informative proposition would have demanded no more effort, either from Mary or from the hearer. All such cases have a similar analysis. If the more informative proposition would not have been more relevant, there is no implicature. If the more informative proposition would have been more relevant, the utterance will be taken to implicate either that the speaker is unwilling or (more commonly) that she is unable to provide the more relevant information. In the latter case, the communicator's inability may be due either to her not knowing whether the more relevant information is true, or to her knowing it to be false. If either of these two possibilities is manifest and relevant, it will be treated as an implicature. (Sperber & Wilson 1995:278)

This reasoning is straightforwardly applicable to the explanation of exhaustive readings. These too are cases where 'closely related, equally accessible' and manifestly

[20]Note that Sperber & Wilson consistently refer here to the assumptions regarding the communicator's willingness or ability as being 'implicated'. However, they point out elsewhere (1995:257,298) that at least some kinds of 'quantity implicature' may operate at the level of what is explicitly communicated. This issue is picked up in the present chapter in section 3.3.

more informative and more relevant propositions are contrasted with the proposition conveyed by the utterance actually produced. Thus, returning to the example (3.10), the reading 'Jake feeds lions, among other things, perhaps including tigers and cheetahs' is blocked for the same reasons that the reading 'it is true that some of my neighbours have pets, since all of them have pets' is blocked in (3.16): only the most informative manifestly possible assertion, relative to abilities and preferences, qualifies as the most relevant.

As Sperber & Wilson point out, the usual conclusion from this reasoning is that it is communicated that the communicator was unable to express the more informative proposition due to its being untrue, this being a more relevant assumption in most contexts than that the communicator is either ignorant of the facts or unwilling to communicate them (though these conclusions do of course also arise on occasion, given the existence of appropriate assumptions in the context). The overall effect of this process is that assertions tend to be understood as expressing the most informative possible proposition from among those manifestly available as relevant alternatives in the context. In other words, exhaustivity emerges as the usual reading of those assertions that are made in contexts that include manifest sets of alternatives, in the absence of evidence for lack of knowledge or unwillingness to pass on information on the part of the communicator. In general, such evidence may be provided by the communicator at the point of utterance, whence the structural markedness of non-exhaustive narrow foci, as outlined in section 3.2.1.

It is clear that manifest sets of alternatives play a crucial role in the relevance-theoretic explanation, as they did above, in the discussion of the intuitive meanings of particular examples. Indeed, it can now be seen that the existence of such alternatives leads almost inevitably to exhaustive interpretations. This is related to the necessary context-dependence of alternative sets, as noted in section 3.2.1. Because alternatives are not mere truth-theoretic objects, but emerge only in relation to relevant assumptions in the context of utterance, they are by definition items whose assertion would increase the relevance any utterance.

Hence communicators do not provide exhaustive statements out of a specific desire or compulsion to be maximally informative as a co-operative strategy. Nor do they generally need to make a point of signalling exhaustivity by encoded means. Rather, the involuntary application of relevance-theoretic principles determines that assertions are typically inferred to be exhaustive among manifestly relevant possibilities

and communicators—who 'know' this, as relevance-based reasoners themselves—adjust their utterances accordingly[21].

3.2.3 Narrow focus and the presupposition of eventualities

Having established that exhaustivity can be attributed to purely inferential processes occurring in certain contexts, it is important to consider what the precise nature of these contexts is. I have argued that the creation of exhaustive readings is associated with narrow focus, on the grounds that narrow focus typically evokes contextually relevant sets of alternatives to the asserted (focused) item. This section investigates in more detail the nature of the relationship between narrow focus and alternatives (and, therefore, exhaustivity), taking into account also those exceptional contexts in which broader foci (those including the tensed verb) take on exhaustive readings. The connection between exhaustivity and narrow foci is argued to be the presupposition of a particular, identifiable eventuality—an idea that is picked up in Chapter 5 as the basis of a novel, dynamic form of neo-Davidsonian semantic representation (that is, one in which eventualities are explicitly represented), which is used in the explanation of several aspects of the pre-verbal position in Hungarian.

Why, then, should narrow foci in particular be associated with contextual alternatives—and therefore (via quantity implicature) to exhaustivity? The answer lies not in the focus itself—so not in anything expressible using grammatical primitives—but rather in the kind of context within which a narrow focus must be interpreted. This in turn must be understood in relation to fundamental principles of communication.

Recall what interlocutors aim to achieve by communicating, according to RT. The communicator aims to induce certain cognitive effects in the addressee, who aims to identify these as accurately as possible (based on the guiding principle that the effort demanded by the communicator's choice of ostensive stimulus will be optimally related to the richness of cognitive effects intended). The overall effect of this is to improve (by expanding or refining) their mutual cognitive environment. As Sperber & Wilson (1986) emphasise, this means that all genuine communication

[21] This refers simply to the fundamental communicative behaviour of communicators' anticipating the meanings that their addressees will glean from their utterances and formulating utterances on this basis. It is important to re-iterate this, however, since the talk in this section of communicators being 'unable' to express certain propositions 'because they are false' might otherwise lead to the impression that the RT explanation relies on a convention of truthfulness—which it emphatically does not (Wilson & Sperber 2002). Communicators are quite able to lie and mislead under this account, provided that they are able to maintain the right assumptions in the *mutual* cognitive environment to ensure that they communicate what they intend.

must involve the interaction of old and new assumptions, and cognitive effects are defined accordingly: existing assumptions may be strengthened or contradicted (and therefore eliminated) and/or contextual implications may be derived, the latter being conclusions drawn inferentially on the basis of both existing assumptions and newly communicated assumptions (and unavailable in the absence of either one of these).

A narrow focus itself effectively contributes only a single piece of information to the cognitive environment, typically of the nature of an entity of type $<e>$, contributed by an NP. This, on its own, does not constitute even a new assumption, much less a set of cognitive effects. In order to lead to cognitive effects, a narrow focus therefore requires a richly specified immediate context, allowing for the identification of the particular assumptions communicated by the assertion of this lone piece of information (and, in turn, their relationships to other existing assumptions).

At the level of an individual sentence, the immediate context required to make sense of a narrowly focused entity is of a particular kind. Each sentence conveys a certain eventuality (event or state). Therefore, if the asserted part of the sentence is only an entity, there must be a particular eventuality manifest in the context with respect to which this entity is being asserted. Any explicit material that appears with a narrow focus—the typically unstressed material that one might call a 'focus frame'—helps to identify the eventuality in question. Hence the idea that the information structure of a sentence can be characterised in terms of 'focus and presupposition': the focus frame represents an eventuality that is presupposed by the assertion of an entity as a narrow focus (see section 3.1.3 above for the appropriate conception of 'presupposition'). Note that the information within an NP that goes beyond the mere identification of an entity, case marking, can be viewed as purely procedural information that indicates how the entity is to be integrated into some eventuality, once the latter is recovered from the context[22].

The reason this kind of context is associated with the evocation of alternatives to the focused entity is essentially the relative specificity of the context provided by the presupposed eventuality. The discussion of examples (3.8) and (3.10) in section 3.2.1 already implies this: in each case, the recognition of a narrow focus leads to the identification of a manifest (incomplete) eventuality into which the focused item is to be integrated and this in turn calls up any expectations or assumptions that exist

[22]Recall (section 3.1.3) that, thanks to the possibility of 'accommodation', a presupposed eventuality need not always be pre-existing and salient in the context, though this will tend to be the case.

in the context with regard to this eventuality. These expectations or other related assumptions determine the possible range of alternatives to the item asserted as the focus. In fact, the very concept of a presupposed eventuality leads almost inevitably to the evocation of expectations or other assumptions concerning alternatives: a mentally represented eventuality is in essence a state of affairs conceptualised in a particular way (with particular details invoked, foregrounded or ignored; particular perspectives taken; anchored in particular spatio-temporal co-ordinates; and so on), so any eventuality that is mutually manifest as such must involve a clear shared conceptualisation of a state of affairs in the world. Given this level of detailed shared information, interlocutors could hardly fail to share a quite restricted set of assumptions about any given participant in such an eventuality.

With a case like (3.8), the very act of asking a *Wh*-question implies that it is relevant to establish which of any contextually possible alternatives plays a particular role in a particular eventuality: the question effectively establishes the eventuality in question and the set of alternatives (which may be more or less salient, see below) is determined by contextually manifest assumptions relating to this eventuality. Thus, the question in (3.8) makes clear that an eventuality of the form 'Bob wants x' is the eventuality with respect to which Mary's assertion is to be assessed. Relevance-based reasoning will lead to accessing the appropriate assumptions that allow the formulation of an eventuality that is a concrete conceptualisation of the already manifest idea that Bob is presumed to desire at least a drink of some kind. That is, the eventuality e_i : $want'(bob', x)$ is established as part of the immediate context for the interpretation of Mary's subsequent assertion. The set of alternatives to the item asserted by Mary with respect to e_i can be constructed from manifest assumptions that relate to e_i in the context. As discussed in section 3.2.1, this might be based in this case upon food and drink physically present in the context, or might be restricted to a certain set of available drinks (to give just two likely examples), depending entirely on what assumptions are manifest and how accessible they are in any given context.

In (3.10), which features no *Wh*-question, further inferential steps are involved in establishing the eventuality with respect to which the focus is to be interpreted, as seen in section 3.2.1. Nevertheless, the presupposition of a particular eventuality must be involved and this leads to the identification of alternatives in just the same way. In the case of (3.10), it is clear that the relevant set of alternatives relates to the expectations that the addressee, Liz, has prior to the assertion of the narrow focus. It is manifest that Liz believes that Jake will feed tigers and

cheetahs and the purpose of Pete's utterance is to contradict this expectation, via a process of quantity implicature. Expectations are a kind of assumption that is manifest in context in the same way as any other, so the basic process involved in the interpretation of (3.10) is just the same as that involved in (3.8). That is, the different effects associated with the two examples are all traceable to the act of asserting the participation of a certain entity (in a certain role) within the context of a presupposed eventuality (and hence also in the context of manifest assumptions associated with it).

In contrast, consider the classic 'topic-comment' kind of utterance, in which what is presupposed is merely the existence of some participant and what is asserted is a 'broader' complex of information, involving both participants and verbal meaning(s). With only the identity of a particular participant to go on, and the knowledge that the communicator is asserting some whole new eventuality with respect to this participant, the addressee cannot formulate a closed set of expectations. Indeed, if the very point of a utterance is (manifestly) to convey a new eventuality—a new way of relating the topical entity to other entities and to truth-values—then the addressee's principal expectation is precisely that of gaining hitherto unknown and unpredictable information: so, for one thing, anything too predictable would be unworthy of the processing effort involved. Just as importantly, there is no limit in any context on the number of different eventualities that could in principle be predicated of an individual participant, all of different degrees and kinds of relevance to the addressee. There is therefore generally no reason to view different eventualities as alternatives to each other, rather than simply complementary pieces of information that contribute cumulatively to the set of assumptions that constitutes the mutual cognitive environment. As a result, topic-comment sentences do not come to be associated with exhaustivity.

One might question why abstract representations of eventualities as such should be invoked in this kind of explanation of the evocation of alternatives. Given that the specificity of the context for narrow focus seems in many ways to be the essential factor, it might be thought that any mental representation that separates out a narrowly focused expression from a presupposed 'focus frame' is a sufficient basis for this line of argument. For example, simply using lambda-abstraction might be considered appropriate, as in the 'structured meanings' approach of Cresswell (1985), von Stechow (1991b). Alongside the above comments, evidence for the importance of conceptualisation in terms of eventualities is provided by those marked

utterances, like (3.7b), that show an exhaustive reading with an apparently broad focus (that is, a focus including at least the tensed verb).

Such utterances are clearly exhaustive in the very obvious sense of being contrastive/corrective; that is, they clearly involve the assertion of one chunk of information in the context of manifest alternative expectations or prior contrasting assumptions. They do not, however, contrast different eventualities with each other: as argued above, different eventualities do not lend themselves to analysis as mutually exclusive alternatives. Rather, these utterances must be analysed as contrasting alternative characterisations of a single presupposed eventuality. Every communicated contrast requires a fixed point, recognised by both interlocutors, in terms of which the contrast is drawn, and this is provided in these cases by a somewhat abstract eventuality. Thus, there is necessarily a presupposed eventuality involved in the interpretation of such utterances, even though most or all of the participants in it are under dispute. In other words, there must be an abstract eventuality that is 'indexed' for the interlocutors in some way, whose principal semantic content can therefore be questioned without the eventuality losing its identity.

This might be simply a matter of spatial and/or temporal indexing, allowing for discussion of things like 'the eventuality involving János at time t', or may be uniquely identifiable by other means, such as causal relationships with other eventualities: for example, the eventuality manifestly under discussion in (3.7b) might be 'eventuality e_{n-1}, the eventuality that caused eventuality e_n, the fact that Mari went into shock'. That this is the correct view of such examples is strongly suggested by the English translation of this kind of sentence, as in *It's not that John sang in the bathroom, but ...*, where the pronoun *it* can be analysed in Davidsonian terms as an anaphor upon an established eventuality referent; that is, roughly, 'Eventuality e_i (the eventuality under discussion) is not correctly characterised as one of John singing in the bathroom' (Davidson 1967; see also Chapter 5, section 5.3.1).

Positing a presupposed eventuality in such cases provides precisely the right kind of abstract entity around which to base the observed exhaustive interpretation; the peg on which to hang different semantic formulae such that they are perceived as contrasting alternatives, rather than separate assertions that do not have any obvious parallel in terms of relevance. The fact that narrow foci interact syntactically with the unmarked position of the main verb, which might be thought of as corresponding to the representation of an eventuality, is a further indication that eventualities are the appropriate kind of semantic object around which to base the explanation of exhaustivity (as pointed out in section 3.1.4).

The importance of the verb in this respect is made more precise in the system of semantic representation proposed in Chapter 5. Since this is based on neo-Davidsonian semantics, in which every proposition contains an eventuality variable, the verbal predicate is crucial to distinguishing the kind of presupposed eventuality that is significant here. Even the representation of a topical entity involves the presupposition of an eventuality in some very general sense, since thematic roles are assigned by functions from individuals to eventualities: a topic such as *Ferenc* therefore contributes the information that 'Ferenc plays a certain role in some eventuality' (which is indeed intuitively part of the information established on encountering such a topic). The eventuality mentioned here is, however, a mere variable, which effectively leads to the expectation of its being specified with the kind of properties that allow it to link individuals to other individuals and to truth-values. As such, it leads to the expectation of the assertion of the *content* of a new eventuality. A presupposed eventuality in the sense relevant to narrow foci must already be associated with the kind of predicative material that imbues it with such properties. This material is supplied by verbs (and/or VMs, as will be shown in Chapter 6). This forms a crucial part of the explanation of narrow focus interpretation developed in Chapter 5 and, as such, the semantic representations provided there show a very direct link to the structure of Hungarian.

In these representations, presupposed eventualities of this kind are not encoded as such. Rather, the linear position and phonology associated with the tensed verb and other expressions determine a certain kind of structuring of semantic representations in the course of their construction, which is based around representations of eventualities and which allows for the recognition of certain information-structural distinctions. In interaction with the left-to-right dynamics of processing, and with the broader context, this allows for the recognition of presupposed eventualities in the sense employed in the present discussion, which in turn lead to the determination of alternatives to narrow foci that are to be asserted in this context (and thence to the range of exhaustivity outlined in this chapter).

The costs and benefits of presupposed eventualities

Requiring the addressee to access entire eventualities in this way, or even accommodate them as presupposed, clearly demands considerable processing effort, compared to communication that relies only on already salient assumptions. Other things being equal, increased effort reduces the relevance of an utterance, according to RT—but other things are unlikely to be equal. A high demand for processing

effort can be off-set by rich contextual effects and, as mentioned in section 3.2.2, the very fact that a communicator chooses to utilise a construction that demands more than the minimum possible processing effort from the addressee may therefore be taken as an indication that relatively rich cognitive effects are to be gained from processing it, thanks to the 'presumption of optimal relevance' that is encapsulated in the Cognitive Principle of Relevance.

The use of narrow focus frequently leads to cognitive effects involving the elimination of prior assumptions. This is particularly likely in cases in which a presupposed eventuality is evoked at the point of utterance (either by reference to a relatively inaccessible assumption or by the use of 'new' material as a presupposition for a further assertion), since this is most likely to involve the contrasting of the narrow focus with salient beliefs or expectations. As Sperber and Wilson (1986:114) point out, this can be a particularly significant form of contextual effect, since it may have knock-on effects. If the assumption in question had served as a premise for the deduction of other assumptions, for example, these too will have to be eliminated. In this way, a chain of contextual effects could be set in motion, which in some cases could result in significant reorganisation of the cognitive environment. The cognitive effects derived from processing a narrow focus are therefore likely to off-set the extra effort demanded by even relatively complex acts of 'accommodation'.

Non-exhaustive narrow foci and eventualities

The perspective afforded by the connection of narrow focus readings to presupposed eventualities suggests a novel explanation of the appearance of non-exhaustive narrow foci following a stressed verb, as if simply part of a broad focus in a 'topic-comment' sentence (see section 3.2.1; see also Szendrői to appear for detailed arguments in favour of the idea that putative examples of post-verbal non-exhaustive narrow focus should be re-analysed as broad foci—'VP-focus', in Szendrői's terms). Presented as such, these expressions appear as if not related to a presupposed eventuality, but rather part of the formulation of a new eventuality. This is consistent with the non-exhaustive reading of these expressions in the following way.

As argued above, the presentation of entire eventualities as (broad) foci does not typically invite contrast with alternatives because of the fact that different eventualities are of different kinds and degrees of relevance in any given context. Presenting a combination of verb plus would-be narrow focus as if a new eventuality therefore leaves open the possibility that other eventualities involving the same verbal meaning happened also, these being conceptualised as separate eventualities. For

example, Horvath's example (3.12b), repeated here as (3.18), uses a verb (*meghívták* 'they invited') that would normally be taken to represent a presupposed eventuality, given the preceding *Wh*-question, but presents it syntactically as if at the beginning of a broad focus (or 'comment'), the pre-verbal VM *meg* showing that there is no other immediately pre-verbal expression that could be taken as a narrow focus. This means that the object *Jánost*, which would normally be taken in the context as a narrow focus (again, given the nature of the *Wh*-question), is presented as if part of a new eventuality, 'They invited János'. That is, despite the nature of the explicit context-question, the form of the reply suggests the 'topic-comment' meaning 'An eventuality that holds of "them" (as subject) is that they invited János', rather than the true narrow focus reading, 'The one they invited was János'.

(3.18) Kit hívtak meg?
'Who did they invite?'
Meghívták *(például / többek között) Jánost.
VM-invited-3PL for-example / others among János-ACC
'They invited JÁNOS, for example / among others.'

Given the presentation of 'They invited János' as a 'new' eventuality, there is nothing to prevent the existence of further eventualities that involve other people being invited by the same 'them'. This is in stark contrast to the situation with a presupposed eventuality 'They invited x', in which (as argued above) the parallel relevance of all possible substituends for x, in this highly specified context, makes them into a set of alternatives and therefore leads to the expectation of an exhaustive statement, in order to maintain optimal relevance.

Clearly, if this is the reading involved, this question-answer sequence would be incoherent without some fairly explicit way of signalling how it is to be taken as relevant. In this sense, this analysis predicts the facts noted by Horvath: that explicit material such as 'for example' or 'among others', or at least rising intonation to signal incompleteness (see section 3.2.1) is necessary to allow a non-exhaustive reading, where the prior context creates the expectation of a narrow focus.

Note that non-exhaustive narrow foci therefore represent a kind of inverse of those cases of accommodation discussed above, in which new information is manifestly presented in order to be used immediately as a presupposition for a further (narrow focus) assertion. In the case of non-exhaustive foci, an eventuality that is in fact already mutually manifest (thanks to the *Wh*-question in (3.18), for example) is effectively abandoned in favour of reworking the information it contains into a 'new'

eventuality, which contains also such material as would otherwise have been treated as a narrow focus. Taken together, such phenomena represent a further illustration of the importance of a psychological view on context and meaning: interlocutors are not constrained by structured representations of information introduced by previous discourse, but are at liberty to manipulate such information, even contrary to its apparent status, provided the way in which this is done creates suitably rich cognitive effects for minimal effort.

3.2.4 The failure of encoded focus: the absence of exhaustivity

The majority of the present chapter has presented theoretical arguments against the encoding of focus or exhaustivity, in which the relationships between syntax, semantics and pragmatics have been (at least implicitly) of primary concern. That clear-cut empirical evidence has been largely absent is in many ways inevitable, given that the conventional strategy of motivating syntactic operations (conceived of as movement) by the stipulation of grammatical features with interpretive correlates is arguably an *ad hoc* response to the observed features of the 'focus position' construction and, as such, can be expected to show a high degree of descriptive adequacy. In this section, however, I present clear evidence, due to Horn (1981) (see also Vallduví 1992, 139ff.), that pre-verbal focus cannot be simply a means of encoding exhaustivity.

The basis of this evidence is the observation that any aspect of meaning that is truly encoded, such that a given syntactic construction triggers a particular semantic effect, should not fail to appear whenever that construction is employed, regardless of context. This can be tested for by constructing a context that requires this aspect of meaning to surface in isolation in order to create a coherent discourse. If the crucial meaning is not encoded, but is rather inferentially derived on the basis of other factors, incoherence will be the result.

Horn (1981) creates such a test for the putatively encoded exhaustivity of English *it*-clefts, in the sentence (3.19a), which can be contrasted with (3.19b), in which the word *only* provides an explicit, lexical encoding of exhaustivity. If exhaustivity were encoded in the *it*-cleft construction, (3.19a) and (3.19b) should be equally acceptable, yet they clearly are not. The notion of exhaustivity simply fails to appear in (3.19a) and thus the use of the cleft fails to create any coherent relationship between the two clauses that are connected by *but*.

(3.19) a. ??I know Mary ate a pizza but I've just discovered that it was a pizza that she ate.

b. I know Mary ate a pizza but I've just discovered that it was only a pizza that she ate.

Horn concludes, incidentally, that the exhaustivity of *it*-clefts must be due to what the Gricean tradition terms 'conversational implicature'—as opposed to 'conventional implicature' (which is essentially a form of encoding) or encoded truth-conditional meaning—but also speculates that the extra effort required in processing the special syntactic properties of a cleft is what makes the extra element of meaning, exhaustivity, more difficult to cancel with a cleft than with a focus expressed by phonological means alone, within unmarked word order. In effect, Horn thus sows the seeds of an RT analysis of the kind that I wish to promote.

It might be argued that the lack of parallelism with *only* merely shows that the kind of exhaustivity encoded syntactically is not identical to the effects of this lexical item. What is noticeable about (3.19a), however, is not simply the lack of parallelism between the cleft here and *only* in (3.19b): it is also highly significant that the reason (3.19a) is felt to contain an unacceptable conjunction is that the second clause is felt simply to repeat the information conveyed by the first—that the speaker is aware that Mary ate a pizza. This shows that there is *no* encoded truth-conditional difference between the ordinary declarative in the first clause and the *it*-cleft in the second. Such differences as do exist between these constructions in other contexts must therefore be differences in the perspective taken on the information conveyed in the course of processing, rather than differences in the information that is encoded.

Translating Horn's example into Hungarian shows that exactly the same point applies to PV foci: the sense of exhaustivity cannot be encoded in the construction, since it fails to appear with this construction under certain circumstances. (3.20a,b) are translations of (3.19a,b), respectively[23].

[23]The tense of the main verb has been changed to past to make the context still clearer—something which would also apply to the English examples (3.19a,b), according to my own intuitions, though I reproduce Horn's examples unchanged. Maintaining present tense in the Hungarian version would not alter the point at issue here.

(3.20) a. ??Azt tudtam, hogy Mari megevett egy pizzát, de most vettem
That knew.1SG that Mari VM-ate.3SG a pizza-ACC but now take
észre, hogy egy pizzát evett meg.
mind-to(VM) that a pizza-ACC ate VM

b. Azt tudtam, hogy Mari megevett egy pizzát, de most vettem
That knew.1SG that Mari VM-ate.3SG a pizza-ACC but now take
észre hogy csak egy pizzát evett meg.
mind-to(VM) that only a pizza-ACC ate VM

Another crucial aspect of Horn's examples, from my point of view, is that the exhaustivity of the English cleft and Hungarian pre-verbal focus fails to emerge just when the context prevents the clefted or pre-verbal item from being interpreted as a narrow focus. This is exactly as predicted within an account that views the indication of narrow focus as the underlying purpose of such constructions, with exhaustivity merely an inference over this in most contexts. In (3.19), the fact that *a pizza* fulfils the Patient role in the given event of Mary's eating something is already established—effectively part of a presupposed eventuality—by the time the second clause is processed. Consequently, any subsequent assertion of this NP as a narrow focus is redundant—and therefore irrelevant. In (3.19b) and (3.19b), the word *only/csak* provides a new kind of narrow focus which is indeed asserted in the context of the presupposed eventuality 'Mary ate a pizza' (to the exclusion of the contextual alternative 'among others') : note that *only* would be the locus of the main (probably quite exaggerated) pitch accent in this clause in any felicitous utterance of (3.19b).

3.3 Encoded versus inferred exhaustive focus

Given that the idea that exhaustive focus is encoded in PV does not seem empirically accurate, the question arises why this position was ever adopted and why it remains the must common assumption in the literature on Hungarian focus. Since focus (of any kind) is an aspect of meaning that is intrinsically related to extra-linguistic context, it is arguably also quite inconsistent with the fundamental principles of generative grammar to encode focus at a grammatical level. It is notable that Chomsky continues to suggest (Chomsky 1995) that all information-structural meaning should be left to extra-syntactic modules (though how he would analyse a

language like Hungarian remains unclear[24]), but other analysts have generally been less strict about the divide between competence and use of language. As discussed in the previous chapter, the limits on directly encoding some aspect of meaning in the form of a feature and/or syntactic projection are in practice generally defined by what is seen to be necessary to drive the derivation of observed word orders in a given language, rather than on the basis of any pre-defined principles.

From this perspective (as suggested in section 3.1.1) the structure of Hungarian seems to suggest that exhaustive focus must be encoded, since not only is it associated with an apparent syntactic movement operation, but this operation is also inextricably connected to other syntactic operations that could not be explained by pragmatic theory alone. Thus the grammar of Hungarian might appear to necessitate the encoding of an aspect of meaning that a variety of theoretical considerations suggest should not be grammatically encoded. I have indicated that underspecification on the interpretive side, within a dynamic approach to syntax, may provide an answer to this paradox, allowing for the re-distribution of the burden of explanation towards inferential pragmatic theory, while still recognising that something must be encoded in the structure of Hungarian that provides a trigger for the (pragmatic) derivation of exhaustive focus readings.

It is not only the relative novelty of the dynamic approach to grammatical structure that has prevented such an analysis in the past—after all, there is no reason in principle why even a fixed syntactic projection should not encode a relatively underspecified kind of meaning. Rather, it is generally accepted in the Hungarian literature that there are reasons why the exhaustive element of pre-verbal focus cannot be derived by pragmatic processes alone. These reasons, as I argue below, depend entirely on assumptions concerning the relationship between inference and truth conditions that I have already questioned for independent reasons in Chapter 2.

The reasons for rejecting an inferential account of exhaustive focus are given their most explicit statement by Szabolcsi (1981), who compares the possibility that exhaustive focus arises through pragmatic inference, as implicature, with the idea that it should be considered a truth-conditional aspect of meaning that contributes via encoding in syntax to the compositional semantics of the sentences in which it appears. This would appear to have been a highly influential piece of work, its

[24]Of existing analyses of Hungarian, the one that takes the interface-orientated perspective of the Minimalist Program most seriously is that of Szendrői (to appear), building on Neeleman & Reinhart's (1998) work on Dutch and German; see Chapter 1, section 1.3.3.

conclusions being unchallenged in the majority of subsequent work on Hungarian focus, however much the formal frameworks employed—and the state of modern pragmatic theory—may differ from that assumed in Szabolcsi's article[25].

3.3.1 The case against inferred exhaustivity

Significantly, Szabolcsi's argument is couched in terms of explicitly (and strongly) stated Montagovian assumptions; that is, she identifies linguistic syntax with 'logician's syntax' as far as possible. Proposing (3.21) as the definition of the Fregean principle of compositionality that underpins Montague Grammar, Szabolcsi (1981:141) is unequivocal about its applicability to natural language, stating, "I believe that the validity of [(3.21)] is beyond doubt and thus any grammar, whether organised to reflect [(3.21)] or not, may ultimately be required to satisfy it."

(3.21) The literal meaning of an expression is uniquely determined by the literal meanings of its subexpressions and their mode of composition.

Consequently, Szabolcsi's argument may be seen not only as an important step in the development of analyses of Hungarian focus but also as a kind of case study of the effects of treating the structure of natural language on a par with that of logical languages. Szabolcsi is at least quite explicit about her Montagovian assumptions here, as about her position on the possibilities of combining Chomskyan and Montagovian perspectives (1981:158)—as I have argued, the fact that many linguists are not so explicit has led to much mainstream syntax embodying a somewhat incoherent vision of ostensibly Chomskyan syntax that is assumed to perform the role also of 'logician's syntax'.

Szabolcsi's conclusion that exhaustive focus must be a syntactically encoded property (at least in Hungarian) is reasonable, given the assumptions about pragmatics that were available to her at the time. Indeed, she rightly criticises existing Gricean analyses of 'conventional implicature' (specifically, as formulated by Karttunen & Peters 1979) for the lack of a sufficiently clear theoretical underpinning that would allow its relation to other aspects of linguistic theory to be understood in a useful way (1981:147). A more sophisticated view of the involvement of inference in

[25]Kenesei (1986) and Szabolcsi (1994,1997b), É. Kiss (1998a) and Horvath (2000), for example, can be seen as examples of work on the syntax-semantics interface that accept the basic conclusions of Szabolcsi (1981) regarding encoding versus inference, though none clearly share the strict Montagovian assumptions of the latter. Much of the more straightforwardly syntactic work on Hungarian focus (e.g. Bródy 1990,1995; Dalmi 1998) appears to adopt a similar position on what is encoded in the pre-verbal 'focus position', though not always explicitly.

linguistic interpretation is now afforded by approaches like RT, however, and this shows that the encoding of exhaustive focus is far from a necessary step, and therefore should not continue to be assumed in more recent work.

Szabolcsi's arguments rest on the twin premises that truth-conditionally distinct meanings must relate to grammatical distinctions and that pragmatically derived aspects of meaning cannot interact with truth conditions. Thus, any identifiable truth-conditional distinction is adjudged to justify the conclusion that pragmatic theory is not involved in accounting for the meanings involved, which must instead be considered to be encoded in the syntax of the language.

What is crucial for Szabolcsi in relation to Hungarian focus is therefore the fact that the exhaustivity of PV focus affects truth conditions. This is demonstrated by the fact that the relations of entailment and logical compatibility that hold between (the meanings of) focusless sentences do not necessarily hold between otherwise equivalent sentences that do contain the use of PV focus. As É. Kiss (1998a) points out, roughly the same effects are associated with English *it*-clefts. Szabolcsi offers the following examples (her (14) and (15), which I reproduce with Szabolcsi's notation, though I adapt the glosses and translations for the sake of explicitness and to show the parallel with the English cleft construction)[26].

(3.22) a. [$_F$ Péter] aludt a padlón
Péter slept the floor-on
'It's Péter who slept on the floor.'

b. [$_F$ e] Aludt Péter a padlón
slept Péter the floor-on
'Péter slept on the floor.'

c. [$_F$ Péter és Pál] aludt a padlón
Péter and Pál slept the floor-on
'It's Péter and Pál who slept on the floor.'

(3.23) a. Nem [$_F$ Péter] aludt a padlón
not Péter slept the floor-on
'It's not Péter who slept on the floor.'

[26]It should be noted that, in spite of Szabolcsi's notation, the verb-initial sentence (3.22b) is far from being pragmatically unmarked and, by my analysis and that of É. Kiss (2002), involves some focused material on any of its readings (see Chapter 7, section 7.2). The crucial arguments in this section are unaffected by this.

b. [$_F$ e] Nem aludt Péter a padlón
not slept Péter the floor-on
'Péter didn't sleep on the floor.'

Szabolcsi's argument proceeds as follows (1981:149):

> It seems intuitively clear that it is not merely inadequate but pronouncedly false to infer [(3.22a)], as opposed to [(3.22b)], from [(3.22c)] i.e. that exhaustive listing is part of the truth conditions of [(3.22a,c)].
> ...
> ...suppose that above we were wrong and the truth conditions of [(3.22a,b)] are in fact identical, only their implicata being different. Then we would have to expect that the truth of [(3.23a)] is compatible only with the truth of [(3.23b)] and not with the truth of [(3.22c)], the later two being logically contradictory under any analysis.

On the basis of this reasoning, Szabolcsi takes (3.24) (her (17b)—again with the gloss and translation adapted here) to be evidence against the pragmatic derivation of exhaustive focus, since it shows the truth-conditional compatibility of (3.23a) and (3.22c) and therefore demonstrates that (3.22a) and (3.22b) have different truth conditions.

(3.24) Nem [$_F$ Péter] aludt a padlón, hanem [$_F$ Péter és Pál] / hanem [$_F$ az egész
not Péter slept the floor-on but Péter and Pál but the whole
társaság]
company
'It isn't Péter who slept on the floor; it's Péter and Pál / it's the whole company.'

Having dismissed the idea that pragmatic processes could be involved in the derivation of exhaustivity, Szabolcsi proposes that the pre-verbal position of Hungarian focus must relate to a logical mode of composition whereby the constituent in focus gains an 'exhaustive listing' interpretation, such that the propositional formula relating of a sentence like (3.22a) has the meaning "For every x, x slept on the floor if and only if x is Peter" (1981:151; see Szabolcsi 1994 for a revision of this). In Szabolcsi's (1981) Montagovian approach, this form of composition is stated over the surface structure of Hungarian, but this kind of analysis is carried over implicitly into other approaches (including later work by Szabolcsi), in which the semantic

effects of pre-verbal focus must presumably relate to LF rather than surface structures.

Note that Szabolcsi's arguments rest on the identification of strictly logical relations (contradiction, truth-conditional compatibility) drawn between natural language sentences, rather than logical formulae. This in itself opens up a theoretical can of worms: what does it mean to say that the sentence (3.22c) is logically compatible with (or entails or contradicts) another sentence such as (3.22a)? If true logical relations are assumed to hold irrespective of contextual factors, then they cannot be drawn between natural language sentences in this way (as I show below). Even putting this issue aside, however, there are more general conceptual problems with Szabolcsi's position.

What is missing from Szabolcsi's analysis—and therefore from the usual reasoning against deriving exhaustive focus pragmatically—is the possibility that inferential pragmatic processes can be involved in the derivation of propositional forms. As RT makes clear, this is not only possible, but a necessary part of the explanation of how propositional forms are constructed on the basis of linguistic structures. Once this fact is admitted, the premises upon which Szabolcsi's reasoning rests disappear. As a result, the fact that (3.22a) and (3.22b) do not have the same truth value in every context cannot be seen as precluding the possibility that the difference between them—the exhaustive focus expressed in (3.22a)—is at least partly derived by inferential means rather than encoding.

The next section discusses how phenomena like Hungarian PV focus fit into this picture of the roles of inference and truth-conditions, with particular attention to the applicability of the RT notion of explicature.

3.3.2 Explicature

As mentioned in Chapter 2, work in frameworks like RT has shown that the idea that inferential processes cannot affect truth-conditions is unsustainable, a conclusion that is unsurprising from a dynamic perspective on grammar, in which meaningful structure emerges through a process of incremental parsing performed in real time and in context. To illustrate how this might apply to Hungarian pre-verbal foci, this section briefly reviews the RT position on the involvement of inference in the derivation of truth-conditional representations. Although I shall have cause to question aspects of this position, it serves at least to demonstrate that Szabolcsi's assumptions are not logically necessary ones.

Recall Carston's (1988) example of the temporal element of meaning that can appear with conjunction, as reviewed in Chapter 2, section 2.2.1. To recap briefly, Carston shows that this element is not merely a cancellable implicature that is drawn on the basis of the explicit communication of logical conjunction, but is itself explicitly communicated, such that it affects truth-conditions. This is demonstrated by the fact that (2.4), repeated here as (3.25), does not contain a contradiction, but rather a contrast between two quite separate propositions.

(3.25) It is not the case that she became an alcoholic and her husband left her, but rather that her husband left her and she became an alcoholic.

The only way to explain this is that the temporal part of the meaning of the conjunction is a part of the proposition communicated by each clause in (3.25). Putting aside the unparsimonious alternative of lexically (multiply) ambiguous conjunctions, the conclusion must be that the temporal meaning is inferred but still affects truth-conditions. That is, it represents a process of inference that helps to establish the main proposition communicated by each clause, as opposed to inference that uses the main proposition as one of its premises. In RT terminology, it is explicature.

By Szabolcsi's reasoning, the interpretation of (3.25) would force one back to the position that the meaning difference is encoded—that is, to the undesirable idea that the conjunction is multiply ambiguous—but the insights of RT prevent the need to complicate the lexicon and/or the grammar in this way. As an explicature of the utterance, the temporal element in conjunction is inferred but not implicated.

Carston proposes that survival under negation (or other logical operators) can be taken as a general test for the status of explicature. Thus, the felicitousness of (3.26b) shows that the *exactly n* reading of the numeral in (3.26a) must be considered to be part of what it is explicitly communicated, even though it is clearly not part of what the numeral lexically encodes, given the equal acceptability of (3.26c), in a different context (see Chapter 4 for more on numerals).

(3.26) a. (Context: How many children does Tom have?) Tom has four children.
b. Tom doesn't have four children, he has five.
c. (Context: Does anyone here have four children?) Tom does has four children, in fact he has five.

According to the test for explicature exemplified in 3.26, the exhaustivity of Hungarian pre-verbal foci should be considered to be communicated explicitly. Szabolcsi's example (3.24) might be seen as evidence for this (rather than for the idea that inference is not involved in the derivation of exhaustive readings). Lest the connotations of such examples be questioned in terms of the 'scope' of negator *nem* (see also Chapter 7, section 7.3.1), (3.27) also (more uncontroversially) illustrates the crucial point that the exhaustiveness of such assertions is maintained when under the scope of negation.

(3.27) Nem igaz, hogy PÉTER aludt a padlón, hanem PÉTER ÉS PÁL aludt
not true that Péter slept the floor-on rather Péter and Pál slept
a padlón.
the floor-on
'It's not the case that it's Péter who slept on the floor. Rather, it's Péter and Pál who slept on the floor.'

If this test and its pertinence to the explicature/implicature distinction is accepted at face value, the response to Szabolcsi's arguments in favour of encoding exhaustivity simply runs as follows. Exhaustivity is indeed demonstrably part of the explicitly communicated meaning of a Hungarian sentence that contains pre-verbal focus, but this does not justify the assumption that exhaustivity is encoded as such. This is due to the recognition, in frameworks like RT, that explicatures are constructed via a mixture of decoding and inference. Therefore, if there is, as I have argued in this chapter, reason to believe that exhaustivity can be inferred in appropriate kinds of context, it may well form a part of the propositional form explicitly communicated in these contexts without being encoded in the construction itself—just as the temporal elements of many examples of conjunction can be taken to be explicitly communicated without being encoded in the lexical entry for *and*. The fact that exhaustivity is at the same time dependent on certain kinds of context, as the examples in sections 3.2.4 show, suggests that some such form of explanation is not only possible but necessary.

It is not clear, however, that this kind of test tells the whole story about what is taken to be explicitly communicated. Other indications of what in a given utterance is understood as an inherent, truth-conditional part of what is communicated do not necessarily always parallel the results of embedding under negation. This suggests

that maintaining a strict distinction between explicature and implicature may not be particularly useful or desirable with this kind of phenomenon—even though the point that inference may be involved in the construction of propositional forms remains a crucial one.

An example of such alternative indications of inherent meaning may be found in the discussion of the English example (3.8) (repeated here as (3.28)) in section 3.2.1.

(3.28) *John*: What does Bob want?
Mary: (Bob wants) a coffee.

There it was mentioned that Mary's answer to John's question gives not only sufficient reason for John to assume that (Mary believes that) coffee is the only one of the contextually available alternatives that Bob wants, but also sufficient reason for John to find Mary to be behaving irrationally (or to have failed to communicate properly) should she later claim *I never told you Bob wanted only coffee.* This is a clear indication that John takes Mary's contribution in (3.28) to be in and of itself an exhaustive statement.

Furthermore, in the context provided by John's question, there can be no subsequent cancellation of the idea of exhaustivity without interpreting this as Mary's correcting herself, at least in the sense of recalling some previously neglected information which must be added to her original answer. This is what one would expect of information that is part of the inherent meaning of the utterance—information that affects truth conditions—rather than information inferred on the basis of some other proposition that is more directly communicated; this latter kind of information being usually thought of as more freely cancellable. The kind of simple cancellation in question is illustrated in (3.29a). In order to recognise the necessarily corrective nature of Mary's second sentence here, this example must not be confused with the same words spoken in a different context; that is, one in which *a coffee* would not be a narrow focus. In (3.29b), for example, where John's question makes *a coffee* part of the presupposed information in the context, there is no sense in which Mary's second sentence is a correction of (or last-minute necessary addition to) her first[27].

(3.29) a. *John*: What does Bob want?
Mary: (Bob wants) a coffee. In fact, he wants a coffee and a glass of water.

[27]The examples in (3.29) parallel those of van Kuppevelt (1996:411ff.), which involve 'scalar implicatures' induced by numerals. This parallel is taken up in Chapter 4, section 4.3.1.

b. *John*: Who wants a coffee?
Mary: Bob (wants a coffee). In fact, he wants a coffee and a glass of water.

Despite such reasons to believe that exhaustivity is an inherent part of what is communicated by Mary in (3.28), it fails Carston's test for explicature: the sense of exhaustivity does not survive sentential negation. That is, the negation of Mary's contribution as it stands could not be used felicitously to argue specifically against the exhaustivity of her assertion, as shown in (3.30)—instead, it would be taken to correct her assertion that as a whole.

(3.30) *John*: What does Bob want?
Mary: (Bob wants) a coffee.
Bill: He doesn't want a coffee / It's not true that he wants a coffee—??he wants a coffee and a glass of water.

The fact that this negation test fails to parallel other strong indications that exhaustivity is taken as an inherent part of Mary's utterance suggests that a strict explicature/implicature distinction based on such tests may not be useful in characterising this kind of data.

There appears, in fact, to be a cline in the degree to which exhaustivity can be considered an inherent part of what is communicated by a given utterance—and this is heavily dependent on context. Once again a significant difference appears between a simple question-and-answer example like (3.28) and a more contrastive example like (3.10), repeated here as (3.31), though both feature only unmarked, simple declarative English sentences.

(3.31) *Liz*: Someone should feed the tigers and the cheetahs. I wonder if Jake is around.
Pete: Jake feeds lions.

Once again, this example of exhaustivity fails the negation test for explicature: *Jake doesn't feed lions* or *It's not true that Jake feeds lions* could not be taken to mean that Jakes feeds lions and other things, even in the context of this dialogue. On the other hand, Liz could quite felicitously counter Pete's claim by saying *He doesn't just/only feed lions* (or *He doesn't feed just/only lions*). That a response containing the negation of an explicit expression of exhaustivity may be used as a

natural contradiction of Pete's statement is a clear indication that this statement is considered to be inherently exhaustive. This is unsurprising given that (as argued above) the very point of Pete's contribution seems to be to trigger inferences that lead to contrast with (or correction of) Liz's manifest assumptions. Note that in this respect, (3.31) contrasts to an extent with (3.28): the continuation of the latter as in (3.32) is less clearly felicitous (unless there are factors in the context that independently promote an expectation of Bob's wanting only a coffee; for example, if it is manifest that Bill considers asking for two drinks to be presumptuous).

(3.32) *John*: What does Bob want?
Mary: (Bob wants) a coffee.
Bill: ?He doesn't just/only want a coffee; he wants a coffee and a glass of water.

Together with the other evidence reviewed above, this suggests that exhaustivity is on one level an inherent part of Mary's assertion, but at the same time it is not taken to be exactly the point of that assertion. Perhaps this should be taken as evidence for implicature rather than explicature—but then where does (3.31) fit in? Whatever the value of the implicature/explicature distinction in a broader theoretical perspective, it does not seem helpful or easily applicable in the case of exhaustivity.

From the point of view of a radically dynamic approach to the interpretation of linguistic structure, it is not surprising that such issues are not always clear cut. In such an approach, inference is pervasive, having many potential points of application during the parsing of a sentence. It is to be expected in this case that inference affects interpretation both before and after different aspects of truth-conditional meaning can be established, and that some inferences will be stronger than others, up to the point of uncancellability. Chapter 6 discusses a number of ways in which inferences drawn at certain key points in parsing a Hungarian sentence affect the possible interpretation of that sentence definitively, so that they would never be thought of as implicatures. Other kinds of inference may be more clearly separate from what is encoded, but nevertheless be strongly felt to part of what is communicated, because they are so essential to achieving any kind of relevant interpretation of the utterance. This is the case with an example like (3.31); whether the negation of the form of the utterance is available as the negation of the propositional

information that is understood is in many ways a side issue, which might plausibly be affected by a variety of independent factors[28].

The crucial point for present purposes is simply that the involvement of some element of meaning in determining truth-conditional aspects of what is perceived to have been communicated is not in itself a reason to believe that this element of meaning is directly encoded at a lexical or syntactic level in the utterance that conveys it. Nor does assuming that some element of meaning is *not* encoded in a linguistic construction mean that communicators cannot deliberately employ that construction in order to convey that meaning. As the logic of RT demands, communicators tailor their utterances according to the effects that they expect them to have, given their appreciation of the mutual cognitive environment in which communication is taking place. If it is manifestly the case that using a certain construction will produce a sense of contrast in a given context, a communicator can use that construction with the intent of producing contrast, without any element of contrast being encoded in the grammar. Again, this is the point of examples like (3.31). The English unmarked word order sentence (3.31) is not inevitably associated with narrow focus, however, so there is little temptation to suggest that it encodes exhaustivity. Constructions like Hungarian pre-verbal focus and *It*-clefts do inescapably relate to narrow focus (the former for reasons outlined in Chapter 5), so the impression is more regularly one of a construction that exists to express exhaustivity. As the arguments of this chapter have made clear, it would be a mistake to confuse this common *use* of these constructions with their encoded content.

The analysis of Hungarian pre-verbal position that I develop in Chapter 5 involves propositional representations which allow for the recognition of the information structure of the utterances that convey them but which do not include explicit representations of exhaustivity. This allows for an account that unifies pre-verbal foci with other occupants of the immediately pre-verbal position. Even so, the elements of a narrow focus reading that cause it to be associated with exhaustivity, such as the presupposition of a particular eventuality and a sense of 'identification', come through clearly in the proposed representations of sentences that contain PV foci. This is entirely due to dynamic nature of the analysis and the inferential processes that form a necessary part of it.

[28]The general likelihood that Carston's negation test for explicature reliably picks out a consistent class of meanings is an issue deserving of further study. Given the complexities of the pragmatics of negation (see Horn 1989), it is not clear that this test should be expected to have always the same significance when applied to different structures in different contexts. The precise analysis one gives to the semantic contribution of negation may well affect this question (see Chapter 7 for my analysis of the Hungarian negative particle *nem*).

Chapter 4

Focus and Quantifier Distribution

4.1 Introduction: focus and 'assessment procedures'

As the previous chapter argues, the ideas relating to focus that are important in the analysis of the immediately pre-verbal position in Hungarian should not be thought of in terms of semantic primitives that are involved in syntactic representations in the form of features, but rather in terms of the ways in which interpretation proceeds in different contexts (aspects of which may or may not be explicitly indicated by the form of a given utterance). In particular, the nature of the presupposed information involved in a given act of interpretation was shown to play an important role in determining the kinds of interpretation that are associated with the Hungarian pre-verbal 'focus position'. In other words, the 'perspective' taken on different parts of the interpretation of an utterance plays a crucial role, in the sense that presupposed parts must be considered first, as a logical preliminary to processing the asserted part in the appropriate context (the presupposed parts being involved in constructing the appropriate context).

Given this view on the analysis of pre-verbal focus, a promising point of contact emerges with work by Szabolcsi (1997b) on certain categorisations of quantified noun phrases (henceforth QNPs) that appear to relate to the ability of different QNPS to appear in different pre-verbal positions in Hungarian. Szabolcsi argues for the existence of a syntactic projection 'PredOp' that is superficially indistinguishable from the pre-verbal focus position (that is, it is followed by a destressed verb and causes the post-posing of VMs) and proposes that this comes to host cer-

tain QNPs because it prompts a certain 'semantic assessment procedure'[1]. This is contrasted with another linearly pre-verbal position, 'DistP', which is equivalent to É. Kiss's (1987) 'quantifier position' (so does not cause VM postposing), and which Szabolcsi argues to prompt a semantic assessment procedure that effectively represents taking the opposite perspective on (quantifier) interpretation to that prompted by PredOp.

In this chapter, I show that Szabolcsi's PredOp position is (under any theoretical assumptions) none other than the same immediately pre-verbal position that hosts pre-verbal foci, and that the assessment procedure that she associates with it is just that of the assertion of a narrow focus in the context of a presupposed 'focus frame' (containing a presupposed verbal meaning). It so happens that the narrow focus in these cases is typically on the lexical quantifier, whose semantic contribution is taken to be that of a simple cardinality predicate. This analysis allows not only for the integration of a number of quantificational issues into a broader conception of the significance of Hungarian pre-verbal syntax, but also for straightforward explanation of certain constraints on quantifier distribution that receive only partial explanation under Szabolcsi's 'PredOp' account.

My analysis nevertheless accommodates many of the insights of Szabolcsi's work concerning the relationships between distributional constraints on quantifiers and distinctions drawn in terms of the theory of generalised quantifiers. In fact, these relationships are strengthened, since my account re-introduces the importance of one such distinction that is dismissed by Szabolcsi. Identifying Szabolcsi's 'assessment procedures' with the context-based view of focus developed in the previous chapter therefore proves to fulfil Szabolcsi's own speculation that a procedural analysis of the quantificational effects in question eventually "may tie together formal and informal lines of research" (1997b:125).

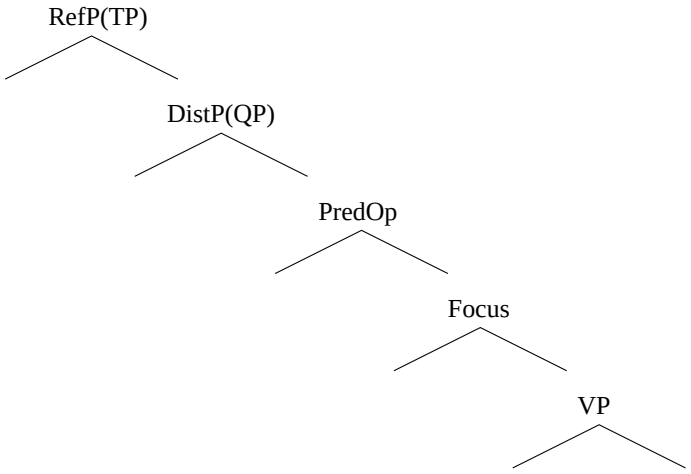
Since my account is based so closely on Szabolcsi's (1997b) work, I begin in the next section with an overview of the relevant parts of this.

[1]In fact, Szabolcsi (1997b:148) equivocates over the precise syntactic nature of PredOp, suggesting that it could be either a projection separate from Focus or a syntactically indistinguishable position (PredOp and Focus being 'alternative specifiers of F[ocus]P') that encodes a distinct interpretative strategy. However, the basis of Szabolcsi's overall approach to her proposed LF representations is that each projection relates to a particular interpretive 'process'; an approach that clearly implies the former analysis of PredOp. In any case, Szabolcsi's proposed interpretations of expressions in PredOp and Focus are quite distinct from each other and it is primarily on interpretive grounds that I argue for their unification.

4.2 Szabolcsi (1997b)

Szabolcsi follows Beghelli & Stowell (1997) in assuming that different kinds of quantifier are attracted to different syntactic projections at LF and in thus denying the appropriateness of a single 'quantifier raising' strategy for natural languages. In line with the oft-cited idea that Hungarian is a language that 'wears its LF on its sleeve' (a belief based mainly on the typically left-to-right expression of logical scope in Hungarian), Szabolcsi proposes that what are only abstract LF projections in languages like English are visible in the surface word order of Hungarian (note, indeed, that Beghelli & Stowell's only real empirical evidence for the projections they propose for the LF of English is this kind of cross-linguistic analogy. Without this, there seems no particular reason to present their essentially semantic insights in syntactic formalism). The projections Szabolcsi (1997b) is particularly concerned with are those which she proposes for the pre-verbal positions of Hungarian (which correspond closely, but not exactly, to Beghelli & Stowell's projections). Szabolcsi's proposed structure for these positions is as in (4.1).

(4.1)



(4.1) includes in parentheses indications of how Szabolcsi's upper projections correspond to the superficial template for the Hungarian sentence assumed in works like É. Kiss (1987), as noted in Chapter 1 and repeated here in (4.2).

(4.2) (T[opic]P*) (Q[uantifier]P*) (Focus) V (XP*)

In the context of these two important models of the Hungarian sentence, it is necessary to elucidate the terminology that I will employ henceforth. For ease of reference, I maintain the relatively theory-neutral labels 'TP' and 'QP' for the two

leftmost positions in (4.2). In the dynamic approach that I take, interpretations result from linear position in the course of parsing (as constantly emphasised in this thesis, while sub-elements of the parse may be associated with particular aspects of interpretation—effectively creating structurally encoded meaning—many aspects of meaning may arise on the basis of the different inferences that are available at different points in the parse). Therefore, while I maintain the use of 'TP' and 'QP', it should be borne in mind that this implies no commitment to abstract syntactic positions as such (and certainly the *P* in these labels should be taken to stand for 'position', in a general sense, rather than 'projection')[2]. More importantly, given that the discussion in this chapter revolves around the comparison of (putative) linearly pre-verbal positions, it is clearly no longer possible to refer to the VM-inverting configuration as involving the use of 'the (immediately) pre-verbal position'; however, 'PV' is retained as a simple label for the status of the relevant expressions. The label 'Focus' (always with a capital *F*) is used in reference to Szabolcsi's position of this name—that is, as distinguished from her 'PredOp'.

In terms of these new labels, then, the main aims of this chapter are, first, the reduction of PredOp and Focus to a single position, PV, (at this stage entirely on the basis of its focus-related reading, though it has others) and, second, the explanation of certain quantificational constraints associated with QP and PV.

Szabolcsi in fact has little to say about her Focus position, concentrating on the differences between RefP and DistP (which lie outside the scope of this thesis) and, in particular, on the significant difference between these two positions, taken together, and PredOp, which is posited as the unmarked surface position of certain quantifiers and the only pre-verbal position of others. As mentioned above, the diagnostic for inhabitance of PredOp is the same as that for Focus: the obligatory postposing of any VM in the sentence—that is, PredOp and Focus are indistinguishable in surface structure. The principal reason for positing a difference between PredOp and Focus appears in fact to be a matter of interpretation: immediately pre-verbal quantifiers are felt to not necessarily take on the exhaustive reading that is generally associated

[2]Similarly, I refer to certain other conventional entities of conventional syntactic theory, such as the 'N'' within a QNP (i.e. what remains if the quantifier is stripped away) simply because I take this kind of terminology to be suitably clear to most linguists as a label for the kind of sub-strings that I refer to (or whose interpretive contribution I refer to). Such terminology is not an indication that conventional syntactic assumptions are either necessary for or even necessarily compatible with the analysis proposed.

with the focus position[3]. The use of the putative PredOp position is exemplified in (4.3).

(4.3) Kevesebb, mint hat diák értette félre a kérdést.
fewer than six student understood aside(VM) the question-ACC
'Fewer than six students misunderstood the question.'

As (4.3) exemplifies, QNPs commonly found in the relevant position include 'modified numeral' QNPs, such as also *több, mint hat N* 'more than six N' and *legfeljebb három N* 'at most three N'. This has led to the assumption that these form some kind of natural class and that some property specific to them causes their appearance in PredOp/PV (for example, Bende-Farkas (2002:40) speculates that this may be related to their being "inherently Focus-sensitive, as proposed for English *at least* and *at most* in Krifka (1999)"). However, some modified numeral QNPs can also appear in other positions, so they cannot as a class be required to surface in PV. Furthermore, unmodified numeral quantifiers (e.g. *hat N* 'six N') can also surface in PV. In this case, these take on the reading 'exactly n N' and have phonological stress on the numeral, characteristics which will be explained below (the former in fact follows from Szabolcsi's own analysis of PredOp, the latter from my analysis which collapses PredOp and Focus into one position and one interpretive procedure). In section 4.5.2, I show that the common association of modified numeral QNPs with PV follows straightforwardly from nothing more than the general interpretative procedure prompted by PV and the simple fact that these QNPs are relatively complex structurally.

The crucial distinction that Szabolcsi draws between QP and PredOp, in explanation of the quantification constraints that each position displays, involves not differences in truth-conditions encoded in the different positions, but rather different procedures for the assessment of truth-conditions. As Barwise & Cooper (1981) point out, most QNPs which may be assigned truth-conditions as generalised quantifiers may also be given representations as witness sets (essentially, arbitrarily chosen sets with the properties that correspond to the restrictor N′ and a cardinality consistent with the quantifier; see section 4.4.1). While Barwise & Cooper (1981) propose

[3]Szabolcsi does offer some structural evidence for the Focus/PredOp distinction, based on the behaviour of negation with PredOp quantifiers and focused NPs, but the judgements behind this evidence are disputed by a number of other Hungarian speakers—see, for example, É. Kiss (2001)—while the remaining data regarding quantification in immediately pre-verbal positions seem to be uncontroversial.

that witness sets may be seen in general terms as a psychologically realistic reanalysis of generalised quantifiers, Szabolcsi recognises and exploits the potential in maintaining both forms of representation for different functions within a language. Thus, Szabolcsi proposes that QNPs in RefP/TP and DistP/QP are interpreted as witness sets, while QNPs in PredOp receive a 'true generalised quantifier' interpretation. That is, RefP/TP and DistP/QP pick out set referents as logical subjects of predication, and predicating something of these involves checking the members of the respective set for some property (as denoted by the logical predicate part of the sentence). Interpreting PredOp, on the other hand, involves establishing the intersection of the subject N′ set and the set denoted by the logical predicate and comparing the cardinality of this intersection with the cardinality expressed by the quantifier. The two modes of assessment are schematically represented in (4.4).

(4.4) a. TP/QP:
$[\,[\![\text{DET}]\!]\,[\![\text{N}']\!]\,]_{\text{LOGICAL SUBJECT}} > [\![\text{V}(+\text{XP}^*)]\!]_{\text{LOGICAL PREDICATE}}$

b. PredOp:
$|\,[\![\text{DET}]\!]\,|_{\text{QUANTIFIER}} < |\,(\,[\![\text{N}']\!] \cap [\![\text{V}(+\text{XP}^*)]\!]\,)\,|_{\text{`REST OF SENTENCE'}}$

Informally, Szabolcsi describes the two procedures as follows:

(4.5) a. **RefP/DistP**: "start out with a set determined by the quantifier and check its members for some property" (p.125).

b. **PredOp**: "[perform] a counting operation on the property denoted by the rest of the sentence" (p.122).

One contribution of this chapter will be to replace the 'counting operation' to which Szabolcsi refers. The notion of 'counting' is one that Szabolcsi relies on to characterise the set of quantifiers which may appear in PredOp, yet she does not in fact define what distinguishes a 'counting quantifier' from any other. Once PredOp and Focus are recognised as a single position, the procedure described in (4.5b) must be seen as involving something more general than a counting operation, while constraints on quantifier distribution prove to emerge from other sources.

4.3 Against the PredOp/Focus distinction

As pointed out in Wedgwood (2002), the motivation for unifying PredOp and Focus becomes more obvious once the descriptions of assessment procedures in (4.5a) and (4.5b) are made fully parallel. In order to achieve this, (4.5b) might be re-written in

the form 'start out with the rest of the sentence and evaluate the quantifier in terms of this' (where, for Szabolcsi, this evaluation is performed in terms of a 'counting operation'). Evaluating a narrow focus is another operation which can be described in terms of 'starting out with the rest of the sentence'. Here the rest of the sentence is a presupposed focus frame (containing a presupposed verbal meaning). This forms the background to the assertion of the focused item. The parallel between this and the proposed characterisation of PredOp suggests that Szabolcsi's 'true generalised quantifier' procedure for PredOp could be just a special case of a more general procedure that requires the expression in PV to be evaluated in the context of the interpretation of the rest of the sentence[4].

The procedural parallel of 'starting out with the rest of the sentence' suggests that Szabolcsi's procedures should be seen not as abstract mathematical procedures, as they could be under a purely semantic analysis, but rather as real-time cognitive processes. The implication is that PredOp QNPs are in fact nothing other than cases of narrow focus on a quantifier. This is the correct parallel, rather than narrow focus on a whole QNP, because the 'true generalised quantifier' mode of semantic assessment evaluates just the contribution of the quantifier—essentially cardinality information—against the context of 'the rest of the sentence', in the form of the value of the intersection of the logical predicate and the (semantic contribution of) the N′ from within the QNP.

PredOp quantification should therefore involve QNPs in which the N′ material is 'pied-piped' into the focus position. This idea is borne out in native speakers' intuitions regarding the contexts in which PredOp quantifiers are felicitous. For example, a sentence such as (4.6)—Szabolcsi's (1997b:138) example (59)—requires that there be a manifest contextual assumption that 'some number of students fell ill yesterday'. Note that Szabolcsi's own English translation of this example reflects this fact; she turns the whole of the sentence apart from the quantifier into a definite subject NP in the English (contrary to the structure of the Hungarian sentence) in order to get across the presupposed nature of this material.

[4]The idea of the PredOp position has been questioned on other grounds elsewhere. É. Kiss (2001) provides arguments that PredOp is redundant from a purely denotational semantic point of view. Bende-Farkas (2002) employs some arguments that resemble those of the current section, but is concerned mainly to show that putative PredOp structures share what she sees as the '(semantic) presuppositional structure' of Focus and does not go as far as abandoning PredOp altogether.

(4.6) Tegnap sok diákunk betegedett meg.
yesterday many student-1PL sickened VM
'The students of ours who fell ill yesterday were many.'

In addition to this fundamental interpretive parallel, there is strong syntactic evidence—beyond the surface relationship to the verb and VMs—that cases of Szabolcsi's putative PredOp in fact occupy the same PV position as narrow foci; evidence that, in turn, further supports the idea that they perform a similar interpretive function in relation to the rest of the sentence. This evidence draws on the fact that certain classes of expression are generally restricted to appearing only in PredOp/PV (see below, section 4.4). There is only one situation in which these expressions can appear elsewhere in the sentence. This is when PV is occupied by a narrow focus, in which case the restricted expression may appear post-verbally (if it is destressed; in other words, it is part of a presupposed focus frame). This is illustrated in (4.7), the monotone decreasing QNP *legfeljebb három N* being one kind of constituent normally restricted to PredOp/PV.

(4.7) a. *Jánosnak visszaadott legfeljebb három könyvet.
János-DAT back(VM)-gave at.most three book-ACC
Intended: 'To János were given back at most three books.'

b. Jánosnak Mari adott vissza legfeljebb három könyvet.
János-DAT Mari gave back(VM) at.most three book-ACC
'It was Mari who gave at most three books back to János.'

If PredOp QNPs and foci in Focus are indeed the same kind of object, it should be the case that a PredOp QNP is sufficient to license the post-verbal appearance of a(nother) decreasing QNP, just as a recognised focus would. This is indeed the case, as exemplified in (4.8). Thus, PredOp QNPs license a distribution which is otherwise only licensed by clear cases of pre-verbal focus—a strong indication that they are actually both examples of a single phenomenon.

(4.8) Jánosnak kevesebb, mint hat lány adott vissza legfeljebb három könyvet.
János-DAT fewer than six girls gave back(VM) at.most three book-ACC
'To János, fewer than six girls gave back at most three books.'

Further evidence for the identity of PredOp and Focus comes from the 'definiteness effect' (DE). As Szabolcsi (1986) first observed, there is a set of Hungarian verbs which are incompatible with definite internal arguments (in some generalised sense).

This incompatibility is known to disappear, however, when some other element of the sentence appears as a PV focus, as (4.9a,b) show. Whatever the reason for this may be[5], it provides a test for the similarity of PredOp and Focus: if they really are part of the same phenomenon, PredOp elements should also be able to rescue sentences that are otherwise ruled out by the DE. This turns out to be the case, as ((4.9c) demonstrates.

(4.9) a. *János hozta a széket.
János brought the chair-ACC
Intended: 'János brought the chair.'

b. JÁNOS hozta a széket.
János brought the chair-ACC
'It was János who brought the chair.'

c. Kevesebb, mint hat lány hozta a székeket.
Fewer than three girl brought the chairs-ACC
'Fewer than three girls brought the chairs.'

The apparent difference

There are thus good reasons to abandon the idea that PV should be split into PredOp and Focus. Instead, it seems reasonable to maintain that Szabolcsi's semantic procedures for PredOp are in fact a special, focus-on-quantifier, case of the procedure that underlies the production of narrow focus readings in PV. Indeed, given the clear structural parallels between Szabolcsi's two positions and the connections between their interpretive effects, one might ask why they should ever have been considered to represent separate phenomena. The apparent answers to this are revealing, in terms of the broader theoretical points made in this thesis, regarding the common tendency to favour truth-conditional encoding over inferential explanation and the consequences of this for the categorisation of different meanings.

As mentioned above, the primary reason given by Szabolcsi for the separation of PredOp and Focus is a perceived difference in interpretation: 'PredOp' quantifiers are not felt to produce the exhaustive/contrastive reading that is associated with PV foci. Given the arguments of the previous chapter, it should be clear that

[5]For descriptions of the DE and diverse proposals for its explanation, see Szabolcsi (1986), Kálmán (1995), É. Kiss (1995), Maleczki (1995,1996), Bende-Farkas (1995,2002).

this is not in itself a reason to differentiate any phenomenon from PV focus. Foci in PV have been shown to express the full range of narrow focus interpretations: those that are most felicitously translated into English using unmarked word order as well as those with a more clearly contrastive impact that correspond to *it*-cleft interpretations.

The reason why narrowly focused numeral quantifiers should generally be perceived to be of the former kind (and therefore perceived to be different to PV foci, by those who maintain the parallel with clefts only) is outlined in Chapter 3, section 3.2.1 (see also Wedgwood 2002)[6]. Recall that the set of alternatives invoked by such a context is likely to be an indeterminate, and possibly quite sizeable, sub-sequence of the (ordered) set of natural numbers (indeed, most likely the set of integers). As part of a conventional scale, these are, so to speak, intrinsic alternatives (cf. Krifka 1999); a permanently manifest part of the cognitive environment of any (numerate) language user. Being therefore not dependent on any particular context, such a set of alternatives is typically of low salience, in the sense that it is not specially associated with the current context and little effort is required to access it, meaning that there is no particular associated expectation of rich cognitive effects. The 'exhaustivity' that results from placing a quantifier in narrow focus is consequently of a rather trivial kind that is not felt to be strongly contrastive. Nevertheless, this is a perceptible effect: recall that unmodified numeral quantifiers necessarily take on an 'exactly n' reading in PV. The implications of deriving the 'exactly n' reading as a case of the exhaustivity of narrow focus are briefly investigated below, in section 4.3.1.

Interestingly, in earlier work, Szabolcsi (1981) recognises the connection between PV exhaustivity and the 'exactly n' reading. Yet in her 1997b analysis, she claims (without explicit justification) that this reading, which for her is found in PredOp, is necessarily different to that of a numeral quantifier that is uncontroversially in Focus—that is, a clearly contrastive or corrective use. Once inference is properly taken into account, however, the difference between the two is plainly one of context, not of the kind of interpretive operation involved. Specifically, the clearly contrastive kind of focused numeral is interpreted in a context that manifestly contains a restricted set of possible cardinality values, which are probably connected to the addressee's manifest prior expectations (hence interpretation of the kind 'not five or seven—as you may have thought—but six'). The process of interpretation

[6]This argument applies directly to the interpretation of unmodified numeral quantifiers: further reasons for the tendency of modified numeral QNPs to appear in PV are discussed below, in section 4.5.2.

is underlyingly the same in both cases: assertion of the quantifier as a narrow focus, prompting, by inference, an exhaustive reading with reference to whatever set of alternatives the context might invoke. Note that the failure to recognise this and consequent encoding of the perceived difference between PredOp and Focus at an abstract syntactic level creates a requirement for the string-vacuous movement of PredOp quantifiers to Focus in clearly contrastive cases; an operation that pragmatic reasoning shows to be quite redundant.

The reasons for Szabolcsi's position on these matters—indeed, arguably for the whole 'PredOp plus Focus' analysis—can be traced to the way in which Szabolcsi takes exhaustivity to be encoded in the Hungarian 'focus position'. In a revision of her 1981 formulation (as referred to in Chapter 3, section 3.3.1), Szabolcsi (1994) draws up a (set-theoretic) semantic constraint on the interpretation of Focus that will both produce a strictly exhaustive interpretation and ensure that sentences containing foci will produce appropriate entailments. This results in a constraint that can only operate on (singular or plural) individuals, and therefore not on 'true generalised quantifier' elements. It appears to be this, as much as anything else, which motivates the positing of PredOp (see Szabolcsi 1997b, 149, fn.35)[7].

This leads not only to otherwise redundant syntactic distinctions, but also to a curious inconsistency in the interpretation of the different pre-verbal positions within Szabolcsi's model. While RefP/TP, DistP/QP and PredOp are all associated with essentially procedural interpretations (which prove highly explanatory, as will become clear below), Focus alone contributes a declarative set-theoretic constraint on interpretation. While it is of course not impossible that a language could work this way, it does seem at least strange for Focus to be so much the odd one out in the pre-verbal field, even discounting the wealth of other arguments against its separation from PredOp.

Within an approach which allows a greater role for inference, all such complications and inconsistencies are removed. What Szabolcsi takes as evidence for the necessity to separate PredOp from Focus—the distinction between contrastive individual denoters and apparently 'neutral' generalised quantifiers in the same surface position—can be taken as evidence in favour of a unified PV associated with a single interpretive process: given a single process, different inputs may naturally enough prompt different outputs, provided the process is not overly specified. The ability

[7]Even stripping away quantificational examples in this way, Szabolcsi's (1994) proposal could not account for all examples of PV focus. It is hard to see how the focusing of VMs (see Chapter 1, section 1.3.1), for example, could fit into Szabolcsi's 'individual-focusing' position.

to produce a variety of effects from more underspecified material is precisely what a more heavily inferential account provides. In this way, analysing the exhaustivity associated with PV focus as the result of implicature rather than encoding both allows for a significant simplification of the grammar and produces a more consistent view of the relationship between pre-verbal syntax and the nature of interpretive procedures.

4.3.1 Numerals, narrow focus and scalar implicature

Scalar implicatures, though often analysed with reference to Grice's 'Maxim of Quantity' (see Chapter 3, section 3.2.2), are regularly treated as a separate phenomenon to the exhaustive reading of certain kinds of focused expression. My explanation of the relatively non-contrastive reading of numerals in PV relies, however, on applying to scalar implicatures exactly the same chain of reasoning (regarding the invocation of sets of alternatives in narrow focus contexts) as I apply to other cases of exhaustive focus. Conversely, my presentation, in Chapter 3, section 3.2.2, of the inferential reasoning that lies behind exhaustive focus readings was based on Sperber & Wilson's (1995) analysis of (in this case non-numeral) scalar implicature. This connection requires some discussion, not least because it brings up once again the issue of implicit versus explicit (truth-conditional) communication, which in turn is related by many analysts to questions of encoding versus inference (see Chapter 3, section 3.3.2). In this section I show that apparent differences between the scalar implicature associated with numerals and the general notion of exhaustivity can be shown to follow naturally from the intrinsic characteristics of numerals, within an analysis of scalar implicature as simply a type of exhaustive focus reading.

In Chapter 3, section 3.2.2, I suggested that the 'exactly n' reading of numeral quantifiers in PV should be seen as nothing other than a kind of exhaustive focus reading: 'exactly n' represents the same process of the exclusion of the set of contextual alternatives to an asserted narrow focus—where this set happens to be the set of other natural numbers (or some indeterminate subset of this). What this means, in effect, is that the semantic contribution of numeral quantifiers is taken to be a simple representation of cardinality—that is, with no built-in 'at least' semantics or other complications. As Scharten (1997) points out, the set-theoretic representation of the cardinality of a set, as in (4.11) effectively makes cardinality a (higher order) one-place predicate, whose term refers to a set.

(4.10) $[\![\text{num}_n]\!] = \{\text{X} \mid \mid \text{X} \mid = \text{n}\}$
E.g. $[\![\text{four}]\!] = \{\text{X} \mid \mid \text{X} \mid = 4\}$

This observation may be extended into the realms of generalised quantifier representations: in (4.11), the attribution of cardinality is essentially a predicate, whose term in this case happens to be the intersection of two predicate sets (the 'restrictor' and 'nuclear scope').

(4.11) $|\{x : P(x)\} \cap \{y : R(y)\}| = 4$
'the cardinality of the intersection of the restrictor set and the nuclear scope set is four'

Given that Szabolcsi's 'true generalised quantifier' procedure (the one associated with PredOp) has been argued to be pragmatically determined, as a special case of the act of interpreting an utterance in terms of presupposed focus frame and narrow focus, the semantic contribution of a numeral need not include any part of the generalised quantifier representation other than a cardinality predicate. The creation of the term as a set intersection is effectively just a representation of 'the rest of the sentence'—the focus frame. Thus, *FOUR students are sleeping* (i.e. with narrow focus on *four*) may be given the set theoretic (generalised quantifier) representation in (4.11) (where $P = \textit{student}'$ and $R = \textit{sleep}'$), but this should be seen as simply one way of capturing the fact that the information structure of the sentence is such that interpretation proceeds via the establishment of a focus frame that includes sleeping students (specifically, an eventuality of a set of sleeping students having a certain cardinality) to the predication of a cardinality as the narrow focus, thereby creating a complete propositional form. To put it another way, it is the (explicit or implicit) context question 'How many students are sleeping?' that determines that a set-theoretic representation of the utterance will have the structure in (4.11)—there is no need for any encoded 'generalised quantifier' procedure as such.

It therefore follows from such representations that numerals contribute nothing but a cardinality predicate. In section 4.5.1, I show how this is crucial to the constraint on appearance in PV that is required to replace Szabolcsi's inadequate notion of 'counting'.

Furthermore, the ability to treat the contribution of numerals in this way gives support to the analysis of scalar implicatures as a kind of exhaustive focus. Scharten (1997), though working from somewhat different basic assumptions to mine, takes a

similar line on this issue, and provides considerable evidence that scalar implicatures are dependent on the information-structural role of the numeral in question. As hinted in Chapter 3, section 3.3.2, scalar implicatures appear and disappear in just those contexts in which exhaustive readings of non-numeral expressions are expected. This is illustrated in the near-parallel between (3.29), repeated here as (4.12), and van Kuppevelt's (1996) example (4.13) (presented with van Kuppevelt's own acceptability judgements).

(4.12) a. *John*: What does Bob want?
Mary: (Bob wants) a coffee. In fact, he wants a coffee and a glass of water.
b. *John*: Who wants a coffee?
Mary: Bob (wants a coffee). In fact, he wants a coffee and a glass of water.

(4.13) a. [Harry did a lot of shopping this afternoon.]
How many books did he buy?
#He bought four books. In fact he bought seven.
b. Who bought four books?
Harry bought four books. In fact he bought seven.

Recall that the significance of (4.12) is that *In fact* plays a different role in (4.12a) and (4.12b). In (4.12a), it signals a self-correction by Mary—note that it could be felicitously replaced by more clearly corrective phrases such as *Or rather* or *I mean to say*–while in (4.12b) *In fact* merely signals that Mary is expanding on what she has already said (here *Or rather* would be distinctly odd).

(4.13) shows essentially the same contrast in the case of 'scalar implicature' with numerals—except that here the contrast is still clearer (for reasons touched on below). Since the numeral in (4.13b) is part of the presupposed material (as indicated by the context-question), it need not be read as an assertion of the fact that a certain cardinality predicate holds and therefore it does not exclude the assertion of some other cardinality predicate in the same discourse. It may instead be taken as an indication that the presupposition of some point in the scale (or ordered set)

having been reached by someone's act of buying is fulfilled by Harry—resulting in an 'at least n' reading of the numeral[8].

The parallel connection to information structure in the numeral and non-numeral examples shows that the derivation of the 'exactly n' reading is related to the same process of assertion in the context of alternatives that produces other kinds of exhaustivity. As such, it provides strong evidence for the view that the meaning 'exactly n' represents nothing other than the exclusion of alternative cardinality predicates.

The common origin of 'exactly n' readings and (other) exhaustive readings is of considerable theoretical significance, since the former have been claimed to have a quite different status in terms of semantic and pragmatic explanation. Much work on the interpretation of numerals assumes that the 'at least n' reading is the lexically encoded, truth-conditional meaning of numeral quantifiers, while the 'exactly n' reading is the result of implicature (for example, Levinson 1983; Kadmon 1987; Horn 1989). Carston (1998) points out that there has long been known counterevidence to this view, citing arguments such as that of Sadock (1984) to the effect that *Two plus two equals three* is semantically true on this account—if the 'exactly n' reading were the result only of cancellable implicature, it should be possible to create contexts in which this is judged to be true (without changing conventional mathematics), but this is not the case. Scharten's (1997:67–68) example (4.14) gives a particularly clear illustration of the lack of any principled truth-conditional difference between the two readings: (4.14a) intuitively involves the correction of a falsehood in just the same way as (4.14b) does, yet by the 'semantics plus implicature' view (4.14a) involves only the cancellation of an implicature while (4.14b) is the correction of a

[8]It is beyond the scope of this thesis to give a full account of the 'at least n' reading (see Scharten 1997, 80ff. for one way to deal with this semantically, while maintaining the assumption that numerals encode simple cardinality predicates). As the above comments indicate, I do take it to be intrinsic to the conceptualisation of numerals that they form part of a scale, at least in the sense of an ordered set, but I do not take this to entail that the basic encoded semantics of a numeral is 'at least n', as many linguists have suggested (see below). Rather, I take the scalarity of numerals to be something of the nature of a permanently manifest assumption associated with numerals and therefore an aspect of the context that is available for manipulation by communicators whenever a numeral is not taken to represent the (assertion of the) application of a cardinality predicate as such—that is, when it is not in focus. Given the RT position that inference can be involved in the creation of truth-conditional forms (as in Carston's 1998 analysis of both readings of numerals as explicature; see below), this is perfectly consistent with the monotonicity-based constraints on quantifier distribution discussed in section 4.4. In this sense, and in the light of the discussion of the remainder of this section, it might be more appropriate to apply the term 'scalar implicature' (or at least 'scalar inference') to the 'at least n' reading, rather than to the 'exactly n' reading that is more commonly attributed to implicature; it is in the former case that scalarity as such is really significant.

semantically false statement. It seems clear that the two cases are entirely parallel and should be analysed as such.

(4.14) a.A: How many pupils are there in your class?
B: 31. No wait, 33.
b.A: How many pupils are there in your class?
B: 31. No wait, 29.

For Carston, this kind of evidence leads to the conclusion that numerals are semantically underdetermined in this respect, their truth-conditional properties in any given context being established inferentially. That is, the 'exactly n' and 'at least n' readings are matters of explicature (see Chapter 3, section 3.3.2, where (4.14) is used to demonstrate the negation test for explicature). Carston argues that numerals are special in this respect: as seen in Chapter 3, not every example of exhaustive focus passes tests for the status of explicature (although the exhaustivity associated with constructions like Hungarian PV focus and English *it*-clefts does tend to). Thus, even from within a heavily inferential approach, a significant distinction is drawn between the 'exactly n' reading of numerals and (other) cases of exhaustivity; the latter being necessarily a part of truth-conditional meaning, the former not necessarily so.

Nevertheless, my argumentation regarding both the interpretation and the grammatical behaviour of numeral quantifiers in Hungarian shows it to be an explanatory move in various ways to treat PV numerals as entirely parallel to other cases of narrow focus. In parallel to my analysis of the differences between different kinds of focusing construction in Chapter 3, I suggest that strict distinctions such as that of implicature versus explicature are not always helpful in investigating and categorising the origins of particular interpretive effects. Clear cases of explicature may in effect simply reflect the necessity (hence non-cancellability) of certain inferential steps, given certain properties of elements of the context. In particular, given the account of exhaustivity developed in the previous chapter, any special features of the sets of alternatives involved (as a particular aspect of the context) may be expected to have some effect on the nature of the interpretation yielded by regular processes.

Sets of numerals are special in two ways: first, they are related on a scale; second, they have very precise meanings (even in comparison with other 'scalar' expressions, such as *some, many, all*). Together, these characteristics make numeral values necessarily mutually exclusive. This statement is not contradictory to their ability, as

scalar expressions, to appear sometimes truth-conditionally compatible, for example in a sentence like (4.15).

(4.15) John has five children, so it is true that he has three children.

This kind of (decidedly artificial) example, in which *five* is read as 'exactly five' but *three* is read as 'at least three', is to my mind only truly coherent given a context in which the property of having three or more children is under discussion—otherwise it would, significantly, have at best a distinctly 'devious' rhetorical flavour. However, the point in the current discussion is that even this kind of example does not involve the assertion of both 'three' and 'five' as the cardinality of the set of John's children. While (4.15) may be contextualised, (4.16a) is not clearly acceptable (except possibly in reference to two separate families from different marriages—or, of course, two different men called John) and (4.16b) is nonsense.

(4.16) a. ?John has five children and John has three children.
b. ??John has five and three children.

These linguistic examples merely reflect a logically necessary fact: it is impossible for any set to have two different cardinalities simultaneously. Given this, it is inevitable that numerals will be perceived as being strictly, truth-conditionally exclusive (and hence as being asserted exhaustively)—there is simply no context in which the assertion of any cardinality predicate could be compatible with that of another.

In this respect, relations among cardinality predicates contrast with those among other predicates that may form sets of alternatives in context. The latter are generally not mutually exclusive in principle and therefore the exclusion of alternatives in context must be seen to be communicated by inference. This does not mean that any different process is involved in the two kinds of exhaustive assertion, however. Indeed, assuming that numerals are asserted as cardinality predicates against the background of the ordered 'alternative set' of other cardinality predicates, just as other expressions in narrow focus are asserted against their manifest alternatives, is precisely what allows for the explanation of the particularly strict sense of inherent exhaustivity associated with numerals (as revealed by the test for explicature). Being a logical necessity, the mutual exclusiveness of cardinality predicates is inseparable from any assertion that a particular cardinality holds. It is this, rather than any difference in the interpretive procedure that creates exhaustive readings, that leads to the sense that numerals are 'more truth-conditionally' exhaustive than other expressions in focus.

4.3.2 Unified PV, QP and quantifier distribution

Henceforth, I assume that Hungarian has a single PV position associated with a single interpretive procedure, rather than the two immediately pre-verbal positions (and/or interpretive effects) represented by Szabolcsi's (1997b) Focus and PredOp. This is a desirable conclusion with regard to a maximally transparent syntax-semantics interface: not only is an entirely abstract piece of a syntactic machinery shown to be unnecessary, but also there remain two basic interpretive strategies, matching up with the two kinds of surface syntactic relationship that a pre-verbal NP may bear to the verb (as signalled by prosody and the order of VM and verb).

The semantic assessment of NPs in TP and QP can still be seen as 'starting with the set denotation of the (logical subject) NP', while the procedure associated with PV seems still to correspond loosely to Szabolcsi's other strategy of 'starting out with the rest of the sentence', as in the re-formulation of (4.5b). However, her reference to a 'counting operation' is clearly not appropriate, once we are dealing with a unified PV, rather than simply PredOp. The notion of 'counting', though in itself ill-defined, is important in Szabolcsi's account, since it is used to explain certain constraints on the quantifiers that may appear in different pre-verbal positions. The adoption of a unified PV therefore makes it necessary provide an alternative explanation for these constraints. Ideally, such an explanation would also account for the impression of the importance of the intuitive notion of 'counting' that shows up in Szabolcsi's analysis. The explanation of the different aspects of quantifier behaviour must also at least be compatible with (and preferably should even contribute to the understanding of) the ways that information structure is expressed through the pre-verbal positions in Hungarian.

In the remainder of this chapter, I shall investigate how semantic assessment procedures can be related to information-structural effects when viewed as temporally and cognitively 'real' procedures, as opposed to mere mathematical aspects of a model-theoretic semantics. Further consideration of the procedure associated with PV will show that only an analysis of the way semantic and pragmatic aspects of meaning interact with different syntactic forms of encoding can account for observed patterns of distribution. The procedure associated with TP and QP proves to be a somewhat simpler case, and will be dealt with first, in section 4.4. In this case, I adopt Szabolcsi's semantic account, which successfully predicts which quantifiers are incompatible with both TP and QP. In section 4.4.2, I expand on the implied

links between this semantic generalisation and the information-structural effects common to TP and QP.

4.4 Constraints on TP and QP

4.4.1 The monotonicity constraint

While the description 'modified numeral quantifiers' provides a useful cover-term for the class of quantifiers which tend to appear in PV, it proves not to relate to any grammatically distinguished class when pre-verbal quantifier distribution is looked at in more detail. As Szabolcsi's example (4.17) shows, some modified numerals can appear in either QP or PV[9].

(4.17) a. A: Több, mint hat diákunk félreértette a kérdést.
more than six student-1PL aside(VM)-understood the question-ACC
B: Lehet, hogy még másolkat is találsz.
is.possible that further others-ACC also find-2SG
A: 'More than six of our students$_{[QP]}$ misunderstood the question.'
B: 'Maybe you will find others, too.'

b. A: Több, mint hat diákunk értette félre a kérdést.
#B: Lehet, hogy még másolkat is találsz.
A: 'More than six of our students$_{[PredOp]}$ misunderstood the question.'
#B: 'Maybe you will find others, too.'

However, other quantifiers (mostly, but not all, modified numerals) turn out to be restricted to PV; I shall henceforth refer to these as 'PV-only quantifiers'[10]. The nature of PV-only quantifiers may be assumed to relate to the interpretive procedures common to TP and QP, since something about these positions is apparently incompatible with these quantifiers.

[9](4.17) is used by Szabolcsi to demonstrate the effects of her 'assessment procedures'; the witness set procedure associated with QP produces a referential reading of the QNP—the communicator must have a certain group of more than six students in mind—whereas the PV/PredOp quantifier merely counts those involved in the problem of misunderstanding the question, and speaking of 'others' beyond 'more than six' is not coherent.

[10]That is, QNPs of the relevant class cannot appear in TP or QP, nor can they appear post-verbally and stressed (as part of a 'comment'; see Chapter 3, section 3.1.4). Outside of PV, they can only appear post-verbally and unstressed, in the presence of a(nother) focus in PV—i.e. when presupposed as part of an open proposition—or sentence-initially when intonationally marked as 'contrastive topics'. These two positions/readings appear to be available to practically any kind of expression, so are not relevant to the current discussion of constraints on distribution.

Szabolcsi (1997b) (echoing observations of Liu 1997 with regard to modified numerals) identifies the crucial generalisation that distinguishes PV-only quantifiers from those which may appear in TP and QP: in order to appear in TP or QP, a quantifier must be monotone increasing. PV (or PredOp), on the other hand, can host increasing, decreasing or non-monotonic quantifiers—but the important point here is that those that are monotone decreasing or non-monotonic are always PV-only.

For present purposes, monotonicity may be understood in terms of upward and downward entailments. Monotone increasing quantifiers have only a lower bound and are therefore upward entailing: in other words, if a proposition containing the quantifier is true in a world containing n quantified entities of a certain kind, the same proposition remains true in a world containing $n + 1$,$n + 2$,$n + 3$ ... entities of the same kind. This means that quantifiers like 'at least four' (including *four* on its 'at least n' reading) and 'every' are monotone increasing: 'At least four students smoke' is true in a world containing four students who smoke and equally true in a world containing five, six or a hundred students who smoke. The same holds of 'Every student smokes': here what is truth-conditionally important is that there be no non-smoking students, not how big the number of smoking students is, so the latter may be added to the model *ad infinitum* without affecting the truth value of the proposition.

Monotone decreasing quantifiers have only an upper bound and are therefore downward entailing. This means that worlds that support the truth of a proposition containing a monotone decreasing quantifier are only those that contain some specified number of the quantified entity or fewer than this number. Examples are 'at most n' and 'few': 'At most six students smoke' is only true in worlds containing six smoking students or fewer, while 'Few students smoke' is only true if some (contextually determined) threshold that would constitute 'more than few' smoking students is not exceeded—on the other hand the number of smoking students in the model may be decreased arbitrarily below this threshold (at any rate, as far down as 2, in the special case of 'few', and this arguably by inference) without affecting the truth value of the proposition.

Non-monotonic quantifiers have both an upper and a lower bound and as such do not create entailments either up or down a scale. The obvious example of a non-monotonic quantifier is 'exactly n'. The proposition 'Exactly six students smoke' is only true in worlds containing no more and no less than six students who smoke.

Szabolcsi (1997b) notes that the monotonicity-based constraint on QNP distribution in Hungarian can be accounted for by assuming that the particular 'logical subject first' procedure associated with TP and QP is one of establishing and predicating over witness sets. Szabolcsi (1997b:122) gives the following concise definition of witness sets (see Szabolcsi 1997a for expanded technical definitions).

(4.18) A witness set of a generalised quantifier GQ is a set that is (i) an element of GQ, and (ii) a subset of the smallest set GQ lives on.

A set that a GQ 'lives on' ('a live-on set') is defined as follows (Szabolcsi 1997a:11).

(4.19) A GQ lives on a set of individuals A if, for any set of individuals X, $X \in GQ$ iff $(X \cap A) \in GQ$.

For practical purposes, the smallest live-on set of a GQ can be taken to be the 'restrictor' set denoted by the N′ within a QNP.

In essence, this means that a witness of a QNP is a set made up of (any) members of the denotation of the restrictor N′, with the cardinality that is specified by the quantifying determiner. For example, a witness set of *more than two men* might be $\{john, bill, fred\}$, as long as this set is a subset of the set of men in the world. Thus, witness sets—in contrast to generalised quantifier representations—provide a way to establish a denotation for a QNP without having to consider the denotation of the logical predicate of the sentence.

Predication over witness sets is sensitive to monotonicity because it is, so to speak, an act of predication that takes place in isolation from what is true of the rest of the world. This is because, by (4.18), a witness set is necessarily a subset of or equal to the quantifier's live-on set (i.e. the set denoted by the N′ of a QNP). This means that there may well exist further members of the live-on set, yet these are not taken into account in assessing the truth of a proposition in terms of predication over a witness set. Witness sets are therefore implicitly monotone increasing, in the sense that predication over witness sets that are not monotone increasing does not guarantee the correct truth-conditions with respect to the world as a whole.

For example, assume that Kenny and Henry are both students and both smokers. The set $\{kenny', henry'\}$ can be taken as a witness set of 'at least two students' and if the proposition 'At least two students smoke' is assessed by predicating of this witness set the property of being a smoker, it will be found to be true—and this will

be the appropriate truth value irrespective of how many other student smokers may exist in the world, because 'at least two' is monotone increasing. If the same set were taken as a witness set of the monotone decreasing QNP 'at most two students', then the proposition 'At most two students smoke' would still be judged true as long as Kenny and Henry are students and smokers. This would clearly represent the wrong truth value assignment if there exists any other student smoker in the world.

A more formal overview of this relationship between the monotonicity of quantifiers and the truth-conditions of predication over a witness set is given by Szabolcsi (1997a:16)). This is reproduced in (4.20) (the exemplification of (4.20a) refers of course to the 'at least n' reading of the numeral).

(4.20) Let X be a witness set, and A the smallest live-on set, of GQ. Then:

a. If GQ is monotone increasing, then for any X, $X \in GQ$ iff
$\exists W[W \subseteq X]$.
E.g. *Two men run* is true iff there is a witness of $[\![$*two men*$]\!]$ whose members run.

b. If GQ is monotone decreasing, then for any X, $X \in GQ$ iff
$\exists W[(X \cap A) \subseteq W]$.
E.g. *Few men run* is true iff there is a witness of $[\![$*few men*$]\!]$ which contains all the men who run.

c. If GQ is non-monotonic, then for any X, $X \in GQ$ iff
$\exists W[(X \cap A) = W]$.
E.g. *Exactly two men run* is true iff there is a witness of $[\![$*exactly two men*$]\!]$ which equals all the men who run.

Therefore, as Szabolcsi (1997b:140) points out, the association of Hungarian TP and QP with the creation of witness set denotations provides an explanation for why non-increasing quantifiers turn out to be PV-only. The mode of assessment that relies on setting up witness sets as logical subjects of predication is simply not available with monotone decreasing or non-monotonic QNPs for communicators to convey the propositions (that is, forms with particular truth conditions) that they intend.

4.4.2 Witness set representations and information structure

Szabolcsi concentrates on the formal properties of witness sets, but it is worth noting that they provide a form of semantic representation that is compatible with a number of reasonable assumptions about actual cognitive processes involved in the use of language for communication, in particular with regard to the notion of topicality. Topics are commonly described as being 'the starting point of an utterance' and are also thought of as being necessarily 'given', 'discourse-linked' information (in RT terms, topical information must be mutually manifest before the utterance is produced and generally quite easily accessible, to avoid unnecessarily high processing demands). Both of these characteristics suggest that when a speaker conveys some expression as a topic, it is to be understood by the hearer as directly referring. Direct reference by the NP corresponds to the semantic notion of an NP denotation that is independent of the denotation of the logical predicate. Hence it seems reasonable to suggest that the use of witness sets is not merely a variant of semantic representation which is useful for certain technical reasons of logical syntax, but in fact relates directly to cognitive processes that are involved in relating linguistic structures and context—and therefore to information structure.

Note also how pragmatic inferences supplement witness set representations to overcome the potential vagueness of the latter. Witness sets may in principle be made up of any members drawn from the restrictor noun set, providing the appropriate cardinality is respected; without taking the denotation of the logical predicate into consideration, there is not sufficient information in the sentence to identify specific individual referents in the model as members of the witness set. At this level, witness sets may after all seem to be more a technical semantic 'trick' than a representation with any cognitive reflex. Indeed, there may seem to be a contradiction between the use of arbitrarily constructed witness set representations and the discourse familiarity of topics. In context, however, relevance-theoretic factors (based on salience, encyclopaedic knowledge and so on) will enable the hearer of an utterance to identify the intended members of a witness set. Once such independently necessary inferential pragmatic factors are taken into consideration, there is no conceptual block to viewing witness set representations as having quite direct cognitive and (thereby) information-structural significance.

4.5 Constraints on PV

Just as there are PV-only quantifiers, incompatible with the procedures associated with TP and QP, there is also a class of quantifiers that are unable to appear in PV. Henceforth I shall refer to this class as 'non-PV' quantifiers. This class includes universal quantifiers and *a legtöbb N* 'most N', as well as *NP is* 'also NP' phrases (under the quantificational, but not the 'emphatic' reading of *is*). Uniquely, this constraint holds even if context is manipulated to force a contrastive narrow focus reading of the quantifier, as in (4.21)—even under these circumstances, the QNP appears in QP, as the relative order of VM and verb shows.

(4.21) 'Minden gyerek megijedt / *ijedt meg.
every child VM-feared feared VM
'EVERY child got frightened (e.g. not just the girls).'

Note that this fact may be taken as indirect evidence for a unified PV, as opposed to Szabolcsi's separate Focus and PredOp. If there were one pre-verbal position (and/or interpretive procedure) relevant to quantificational matters (PredOp) and another dealing with focus, one would expect even quantifiers banned from the former to be able to surface in the latter—and hence in the PV surface configuration—given the appropriate information-structural motivation. But this is not the case; rather, there would appear to be a single interpretive process associated with PV (as signalled by V>VM order), with which certain quantifiers are incompatible under any circumstances.

This leaves open the question of how an exhaustive focus reading can be found outwith PV, as in (4.21), since the implication is that a quantifier in QP does not undergo the interpretive procedure that produces the appropriate focus reading (i.e. the procedure associated with PV). This question will be addressed in section 4.6. First, in the current section, I address the key issue of the proper definition of PV-only quantifiers, which leads to the replacement of Szabolcsi's vague notion of 'counting' with a more straightforward semantic categorisation. Apparent counter-examples to this are explained with reference to inferential pragmatic factors and the need for PV to contain a single predicate; a fact that backs up the analysis of scalar implicatures in section 4.3.1 and that is explained in turn by the explanation, developed in later chapters, of PV as the location of a particular kind of encoded procedure.

4.5.1 Proportionality and PV

What aspect of the procedure associated with PV might be incompatible with those quantifiers that are members of the non-PV class? Looking at the central examples of 'every N' and 'most N', a well-known semantic generalisation (from generalised quantifier theory) suggests itself: these quantifiers are proportional—that is, non-intersective.

Proportionality and intersectivity are usually defined roughly as follows (Szabolcsi 1997a:11):

(4.22) Where DET is a quantifying determiner,
   a. DET is intersective iff $\text{DET}(A)(P) = \text{DET}(A \cap P)(P)$.
   b. DET is proportional iff $\text{DET}(A)(P)$ depends on $\text{DET}(A \cap P)/A$.

For example, (4.23) (Lappin & Reinhart 1988:1028) shows that 'five' is intersective, but 'every' is not.

(4.23) a. Five students are radicals
   iff
   Five students who are radicals are radicals.

   b. Every student is a radical.
   is not equivalent to
   Every student who is a radical is a radical.

Instead, the truth-conditions of 'Every student is a radical' rely on the proportion of the set of students that qualifies as both 'student' and 'radical'—in other words, 'every' is a proportional quantifier.

As Lappin & Reinhart (1988) emphasise, these formal distinctions have practical consequences for the 'approach' involved in assessing the truth value of a proposition. In order to establish the truth value of a proposition containing an intersective QNP, it is necessary only to establish the intersection of the restrictor N′ set and the nuclear scope set $(A \cap P)$ and to see whether its cardinality is consistent with that specified by the quantifier. Assessing a proposition containing a proportional QNP, on the other hand, necessitates establishing the cardinality of both the restrictor N′ set itself (A) and the intersection of this with the nuclear scope set $(A \cap P)$, in order to calculate whether the proportion of the one to the other is consistent with

that specified by the quantifier. This kind of difference in the 'approach' necessary to set-based semantic assessment is reminiscent of the difference in 'semantic assessment procedures' suggested by Szabolcsi as the basis of the contrast between PredOp/PV and the other pre-verbal positions—and therefore might be related to the more cognitive, discourse-related procedures that I have argued to subsume Szabolcsi's proposals.

However, as Szabolcsi (1997b:144–145) points out, it cannot be proportionality as such that is incompatible with PV. Some proportional quantifiers are able to appear in PV, and some of these are even PV-only. The examples that Szabolcsi supplies are shown here in (4.24).

(4.24) a. *több, mint 50 százaléka N* 'more than 50% of the N' may appear in PV (cf. the denotationally equivalent, but non-PV *a legtöbb N* 'most of the N').

b. Another clearly proportional (quasi-partitive) quantifier apparently found in PV:
A fiúk közül több/kevesebb, mint hat emelte fel az asztalt.
the boys among more/fewer than six lifted up the table.ACC
'More/fewer than six among the boys lifted up the table.'

c. *kevés N* '(a) few N' always appears in PV, although it appears to have intersective and proportional readings.

The absence of any consistent criterion for appearance in PV (or PredOp), based on proportionality/intersectivity or any similar semantic distinction, leads Szabolcsi (1997b) to the conclusion that any relevant generalisation must go beyond denotational semantics and to the adoption of the vague notion of a 'counting operation'. I have already argued that the arguments in favour of a unified PV over the use of a PredOp position preclude the analysis of the PV procedure as 'counting' (whatever this may mean). There is also empirical evidence from within the class of non-PV quantifiers which suggests that no operation that matches any intuitive definition of 'counting' can characterise the procedures associated with PV. This is due to the fact that proportional quantifiers like *all of the three students*, which include an explicit numeral within the restrictor N′, are non-PV in exactly the same way as ordinary universal quantifiers are. Thus, even given a context which forces a contrastive reading of *mind* 'all', this kind of QNP is restricted to QP, as (4.25) shows.

(4.25) Mind a három diák megijedt / *ijedt meg (nem csak kettő).
all the three student VM-feared feared VM not only two
'All of the three students got frightened (not just two)'.

It is not clear how the nature of 'counting' could be understood, if this kind of example does not involve counting.

Note that this kind of example also precludes another potential line of explanation; one based on the relative complexity of processing proportional quantifiers by certain procedures, along the lines of Lappin & Reinhart's (1988) analysis of presupposition failure with 'strong' quantifiers. Such an account would run as follows. Proportional quantifiers, unlike intersectives, require that the cardinality of the (logical) subject N′ set be established separately to the cardinality of the intersection of the subject and set represented by the rest of the sentence, so that the two can be compared. Iff the sentence is assessed 'subject first', these two cardinality assessments can be performed simultaneously, through the procedure of scanning through the subject set; but if interpretation is approached, as in the case of PV, by assessing the rest of the sentence first, it remains a two stage process. Therefore the PV procedure is blocked for proportional quantifiers on the grounds of relative processing inefficiency. While separate factors might be invoked to explain away some or all of the counterexamples in (4.24) (see below), examples like (4.25) would be truly problematic for such a story, since the explicit numeral makes it unnecessary to put special effort into establishing the cardinality of the subject N′. This effort is in effect taken over from the addressee by the communicator—yet still the QNP is incompatible with PV.

I propose an alternative form of explanation which agrees with Szabolcsi to the extent that a full account must indeed involve non-denotational factors, but within which the intersective/proportional distinction nevertheless plays a role. This role is of the nature of a useful descriptive generalisation rather than being in itself explanatory: the distinction is significant to the extent that it is related to certain inevitable restrictions on the kind of elements that can be involved in narrow focus interpretation.

My account takes its cue from a fact that Szabolcsi does not discuss, which shows the 'non-PV' class of QNPs to be not so strictly barred from PV as has been hitherto stated. It turns out that under certain conditions even a simple universally quantified NP may indeed surface in PV. This happens when the restrictor noun,

rather than the quantifier, is given a contrastive focus reading, as in (4.26) (see Bende-Farkas 2002, 35)[11].

(4.26) Minden FIÚ ijedt meg (nem minden LÁNY).
every boy feared VM not every girl
'It was every BOY that got frightened (not every GIRL).'

This fact is a serious problem for the Beghelli/Szabolcsi approach to the pre-verbal syntax of Hungarian, or any other feature-checking approach whereby focused items on the one hand and different classes of quantifier on the other carry different morpho-syntactic features which (via feature-checking processes) force the NPs that contain them to appear in certain positions by Spell-Out (in Hungarian—and by LF in languages like English, according to some approaches). The only way that an example like (4.26) could be accommodated into such an approach would be to stipulate some form of precedence of focus features over quantificational features, but this would of course fail in the case of focus on the quantifier itself (as in (4.21)). I take this to be an empirical argument in favour of parsing-based frameworks such as Dynamic Syntax. At the very least, this kind of feature conflict calls into question the use of focus features as grammatical primitives[12].

What (4.26) suggests for the analysis of non-PV quantifiers is that it is some property of the quantifier—syntactically speaking, the determiner—rather than the whole QNP that blocks the use of PV in these cases. Furthermore, it is not the mere presence of the quantifier that affects distributional possibilities, but rather the quantifier's relationship to the information structure of the sentence. In order to understand this, it is important to consider once again the way in which the interpretive procedure represented by PV may relate to information structure.

[11] The significance of examples like (4.26) has apparently been overlooked for reasons mentioned in Chapter 3: the common view of the role and nature of pragmatics has led to the compartmentalising of different perceived kinds of focus, despite the lack of any linguistic evidence for such distinctions—note Bende-Farkas's (2002) unsupported assertion, in relation to an example similar to (4.26), that "Cases of correction like [this example] are quite different from ordinary focus", going on to note that these "have not been sufficiently studied in the Hungarian literature".

[12] (4.26) is also a problem for Szendrői's (to appear) prosodically-based approach, in which movement to PV is motivated by the need for a focus-stress correspondence at certain interface levels of the grammar. The problem is that FIÚ in (4.26) would be within a naturally stress-bearing syntactic projection within Szendrői's account if it were to stay in QP, requiring just a stress-shift within the QNP to reflect focus on the N′ instead of the quantifier. This account therefore contains no motivation for the (downward?) movement of the whole QNP as well as stress-shift within the QNP.

Recall the conclusions of section 4.3: the procedure associated with PV is akin to Szabolcsi's 'PredOp' procedure of 'starting out with the rest of the sentence', but must be taken to have the character of a real time cognitive process. This allows it to encompass narrow focus readings wherein the rest of the sentence is in fact a focus frame: mutually manifest propositional material accessed as a unit, which, being presupposed in this way, is literally prior to the newly asserted focus item, at a cognitive level. At the same time, what have been claimed to be unfocused readings of QNPs, in PredOp, turn out to be cases of focus on the quantifier (the intuitive sense of exhaustive focus being relatively weak in the absence of a context that produces an overtly contrastive reading). In these cases, the rest of the QNP must be assumed to appear in PV through some process of 'pied-piping'; that is to say, a syntactic constraint on the linear integrity of NP-sized constituents[13].

The reason why a QNP in PV is interpreted in terms of focus on the quantifier alone, rather than on the whole QNP, is to be found in the account of the (procedural) interpretive significance of PV that is developed in Chapters 5. This involves the expression in PV being necessarily a single predicate, in order to perform a certain role with regard to the creation of a propositional form. It follows that an individual sub-part of a complex expression such as a QNP must be assumed to be the item in focus, the rest of the expression being pied-piped along with it. This need not in fact be the quantifier—examples like (4.26) show how other sub-parts of a QNP can be treated as the predicate in question, given appropriate intonational signalling—but focus on the quantifier is felt to be the unmarked case, for two reasons. First, the unmarked phrase-initial stress placement of Hungarian causes the main pitch accent to be associated with the quantifying determiner in what is perceived to the unmarked intonational pattern and, second, focus on a numeral quantifier is generally felt to be less interpretively marked, being typically less contrastive than other expressions in PV focus, for the reasons outlined in section 4.3.

This not only explains the tendency for PV QNPs to correspond to focus on just the quantifier, but also points the way to an explanation of the existence of non-PV quantifiers: if there is a kind of quantifier that cannot be conceptualised as a predicate, in some crucial sense, then quantifiers of this class will be incompatible with the interpretive procedure encoded by PV. The ability to be treated as a single predicate requires that an expression have the status of a discrete constituent of a (significant kind of) semantic representation. In effect, therefore, the account of PV

[13]See Szendrői (to appear) on the contrast between Hungarian and languages like Croatian in this respect

developed in the following chapters in terms of predicates encapsulates a logically necessary fact about items interpreted as narrow foci: they must be representable as discrete semantic entities in order to be separated out from the representation of the contribution of the rest of the sentence (that is, from the focus frame).

This observation provides the basis for an account of quantification in PV that correctly predicts just which quantifiers must be non-PV. In section 4.3.1, I showed that simple numeral quantifiers can be interpreted as straightforward cardinality predicates, so these are predicted to be able to appear in PV. Since they are intersective quantifiers, the intersection of the restrictor and nuclear scope sets is by definition separable from simple numeral quantifiers, and hence may function as the focus frame for the application of the cardinality predicate as a narrow focus. This is not true of proportional quantifiers (in general, though see section 4.5.2). Their set-theoretic (generalised quantifier) representation shows the semantic contribution of the quantifier to be inextricably connected to the restrictor set (since it is typically with respect to this that they are proportional): the quantifier's contribution is in fact a relation between the restrictor set and the intersection of restrictor set and nuclear scope set. There is therefore no discrete part of the semantic representation that corresponds to the quantifying determiner alone: the whole generalised quantifier representation is necessary to establish the contribution of a proportional quantifier. Just as there is no single predicate that can express this, neither (consequently) can 'the rest of the sentence' be represented separately, in order to provide a focus frame. Among the semantically proportional quantifying determiners are some that do not even contain a syntactic or lexical sub-part that is identifiable as a discrete predicative element of the semantic representation. In these cases there is nothing connected to the contribution of the quantifier that can be taken to be the predicate that is to be assessed as a narrow focus. These cases form the set of non-PV quantifiers.

In order to illustrate the point, consider the difference between the universal quantifier and a simple numeral quantifier. As already discussed, the value of the numeral determiner *four* (or Hungarian *négy*) can be identified as a unitary constituent of a representation like (4.27a), in a way that shows it to be a simple (cardinality) predicate. Meanwhile, the set intersection to the left of the = sign in (4.27a) is available to represent a focus frame that wants only the assertion of such a predicate, in order to create a full propositional form. This is not true of a universal quantifier like *every* (or Hungarian *minden*): because of its intrinsic proportionality, no individual part of its truth conditions corresponds to the quantifier alone. Therefore, it cannot

be treated simply as a predicate. Instead, the whole GQ representation is necessary to get across the contribution of the quantifier, as in (4.27b) or, in an alternative but equally illustrative representation, (4.27c).

(4.27) a. ⟦four/négy⟧:
$|\{x : P(x)\} \cap \{y : R(y)\}| \ = \ 4$
'the cardinality of the intersection of the restrictor set and the nuclear scope set is four'

b. ⟦every/minden⟧:
$|\{x : P(x)\} \cap \{y : R(y)\}| \ = \ |\{x : P(x)\}|$
'the cardinality of the intersection of the restrictor set and the nuclear scope set is equal to the cardinality of the subject restrictor set'

c. ⟦every/minden⟧:
$\{x : P(x)\} \subseteq \{y : R(y)\}$
'the restrictor set is a subset of the nuclear scope set' (i.e. there are no members of the restrictor set to which the nuclear scope predicate does not apply)

The constraint against certain proportional quantifiers appearing in PV thus falls out of two existing assumptions: Szabolcsi's (1997b) proposal that (only) PredOp prompts 'true GQ' interpretation and the observation of section 4.3 that this in fact represents narrow focus on a quantifier, as in other cases of PV focus.

4.5.2 The apparent counterexamples

The previous section explains why the non-PV quantifiers should be proportional, but the exceptions in (4.24)—proportional quantifiers that *do* appear in PV—remain to be explained. This turns out to be a relatively simple matter, once it is appreciated that these exceptions do not represent a complication to the interpretive generalisation associated with PV, but rather behave differently on account of their internal syntactic structure. Szabolcsi seeks a purely semantic (and purely quantificational) generalisation and, on finding none at the denotational level, is forced to appeal to an undefined 'counting operation'; it turns out, though, that it is simply necessary to take notice not only of interpretation but also of the ways in which the semantics of different QNPs are encoded.

The point (already hinted at above) is that some quantifiers are represented by syntactically complex determiners which are partly composed of predicative material, thus allowing for the focusing of certain sub-parts of the quantifier[14]. In these cases, appearance in PV does not have to represent focus on (the contribution of) the whole complex quantifier, so they do not represent a contradiction of the constraint against focusing proportional quantifiers in PV. Focusing on a sub-part of (the semantics of) *minden* 'every' or *a legtöbb* 'most' remains impossible, owing to their lexico-syntactic simplicity: the meaning of the quantifier is not encoded in terms of sub-expressions that contribute other predicates.

'Counterexample' 1: a complex determiner

It is easy to see that this line of reasoning accounts for one of the pieces of evidence that leads Szabolcsi to deny the relevance of the proportional/intersective distinction, (4.24a). Recall that the apparent problem is the fact that *több, mint 50 százaléka N* 'more than 50% of the N' is possible in PV, while the denotationally (at least roughly) equivalent *a legtöbb N* 'most N' is non-PV. The denotation common to these QNPs may be represented as a GQ (in abbreviated from) as in (4.28).

(4.28) $|\{x : P(x)\} \cap \{y : R(y)\}| \; > \; \frac{1}{2}|\{x : P(x)\}|$
'the cardinality of the intersection of the subject restrictor set and the predicate set is greater than half of the cardinality of the subject restrictor set.'

The explanation for the different distributional possibilities of the two QNPs is that the syntactically complex *több, mint 50 százaléka N* allows for the semantic contribution of either '50% /$\frac{1}{2}$' or *több* 'more' to be treated as an individual predicate that is separable from the rest of the sentence and therefore focusable in PV[15]. Under a slightly different representation from (4.28), yet another reading is possible: the contribution of '50' could be treated as a separate predicate, with the contribution of *százaléka* 'percent' included in the presupposed focus frame. The syntactically simpler *a legtöbb N* allows for no such interpretation, since it expresses the proportional quantifier meaning 'most' as a whole, thus making available no 'lower-level' predicates from within its semantic composition (though, as with *minden FIÚ* in

[14]See Krifka (1999) for evidence that suggests that things are in fact more complex than this; many 'complex determiners' being more than just determiner material. This issue does not affect the current argument.

[15]The latter possibility of course requires the symbol > in (4.28) to be re-analysed somehow as a predicate. It should be noted that there is nothing in my approach that requires the predicate in PV to be a one-place predicate—see Chapter 5 for further details.

(4.26), focus on some part of the N′ within the QNP is a possibility and this is associated with the use of PV).

This explanation has significant theoretical consequences. The common appearance of (all kinds of) modified numeral QNPs in PV might lead to the temptation to seek some semantic or structural property that would determine their apparent behaviour as a natural class in relation to phenomena like PV. What the complex QNP in this section shows is that the common appearance of modified QNPs in PV is not due to any property specific to them, but rather the result of the way they happen to fit with the interpretive process generally associated with PV. They are *able* to appear in PV (irrespective of proportionality/intersectivity), simply because they are structurally complex enough to contain expressions of focusable predicates. In addition, the pragmatic character of such QNPs helps to explain why they are so commonly found in PV. The desire, on the part of the communicator, to specify such details as 'fewer than n', 'exactly n' or 'more than 50% of n' is typically linked to the contradiction of contextually manifest expectations—without the existence of such expectations in relation to some presupposed and highly specified eventuality, this kind of detail is unlikely to be worth the effort that it takes the addressee to process the extra linguistic material. The regular appearance of these QNPs as narrow foci, and consequently as occupants of PV, is therefore to be expected on pragmatic grounds and requires no further (structural or semantic) explanation.

'Counterexample' 2: complex QNP-internal information structure

A similar, but in some ways more revealing, example of how the internal syntactic form of the quantifier allows or prevents appearance in PV is provided by (4.24b). For Szabolcsi, this is another example of how the proportional/intersective distinction cannot be the explanation for non-PV quantifiers; it is another clear case of a proportionally quantified QNP (Szabolcsi (1997b:133) refers to this structure as "the closest we can get to a partitive in Hungarian") which does seem to appear in PV, given the order of VM and verb. Again, this kind of example will be seen to involve focus on sub-parts of the quantifier, not on the quantifier as a whole. However, rather than pied-piping occurring freely with focus on any of the sub-constituents of the QNP, in this case the form of the QNP suggests a particular partitioning of the information that it conveys. Indeed, a closer look at the syntactic and information structure within this example suggests that the pre-verbal material should not be assumed to be a single QNP in PV at all.

This analysis rests upon the observation that the PP *a fiúk közül* 'among the boys' is 'fronted' within this construction for a reason, playing a particular information-structural role with regard to the following material. This could be seen as following from relevance-theoretic considerations: the motivation to employ the relatively complex construction *a fiúk közül több, mint hat* '≈ among the boys, more than six' rather than the (presumably) syntactically simpler *több, mint hat fiú* 'more than six boys' is the set of interpretive possibilities opened up by the former that are unavailable through the latter. In particular, the version with the fronted PP allows for this part of the construction to be viewed as quite separate from the rest and lends itself to a reading in which the PP takes on a kind of 'contrastive topic' reading with regard to what follows—something like "talking about the those individuals drawn from the set of boys, as opposed to other individuals from other salient sets ...". This means that there is not a complex proportional determiner in PV in (4.24b), but rather a PP outside of PV and an intersective determiner (*több/kevesebb, mint hat* 'more/fewer than six') in PV. Assuming this, it is immaterial whether the whole of this remaining determiner or a sub-part of it is interpreted as being in focus (this will be determined by context): there is in any case no conflict with the requirements of the PV procedure.

The internal structure of this example in fact parallels another of Szabolcsi's examples of denotationally identical constructions that act differently with regard to appearance in PV. This example does not involve any proportional quantification and therefore the fact that it appears to be entirely parallel to (4.24b) supports the idea that the latter has no bearing on the question of whether proportional quantifiers can appear in PV. The example in question is Szabolcsi's (1997b:144) (69), reproduced here in (4.29). The apparent puzzle here is that the construction in (4.29a) appears freely in QP or PV/PredOp, while the denotationally equivalent (4.29b) is PV-only (or at least severely degraded in QP).

(4.29) a. Több, mint hat fiú ment el / elment.
more than six boy went away(VM) away(VM)-went

b. Hatnál több fiú ment el / ??elment.
six-than more boy went away(VM) away(VM)-went

For Szabolcsi, considering only direct links between denotational semantics and syntax, the contrast in (4.29) can only be seen as an 'idiosyncrasy' of Hungarian (note that neither monotonicity nor Szabolcsi's loose notion of 'counting' is of any

obvious help in differentiating (4.29a) and (4.29b))—in other words, it remains unexplained. The puzzle disappears as soon as one admits that other kinds of meaning can be signalled syntactically: like (4.24b), (4.29b) can be analysed as containing a 'fronted' constituent which takes on a contrastive topic-like role with regard to the rest of the pre-verbal material, leaving only *több fiú* truly in PV (in the sense that only this undergoes the PV interpretive procedure). Contrastive topics tend to require the appearance of a narrow focus later in the sentence and it is therefore unsurprising that the fronting of *hatnál* prevents the rest of the QNP material from appearing in TP or QP. Again, this restriction can be traced back to relevance-theoretic considerations: the (by hypothesis) morphosyntactically more complex (4.29b) should only be used to convey effects that are not available from the use of (4.29a). This comes down to the ability to separate out the idea of 'in relation to six ...' as a contrastive topic, thanks to its lexicalised form in (4.29b); the interpretive function of setting up a simple witness set, on the other hand, can be achieved using the simpler (4.29a).

Native speakers confirm that *hatnál* in (4.29b) has an intuitive 'topic feel', while the intonational possibilities associated with each of the structures in (4.29) provide more concrete evidence that this is the correct analysis. (4.29a) allows for a range of intonational patterns, including the relatively 'neutral' pattern of roughly equal stress on each of the main sub-constituents of the QNP. This is not possible with (4.29b), in which a single stronger stress is always observed on one of *több* 'more' or *fiú* 'boy', corresponding to the necessity for something following *hatnál* to be narrowly focused.

The parallelism between (4.29b) and (4.24b) illustrates the need to recognise that non-denotational factors not only exist but, in affecting syntactic structure in their own ways, may obscure the relationship between denotational semantics and syntax. The apparent 'failure' of denotational semantic generalisations in some cases does not necessarily indicate that these generalisations have no relation to syntactic possibilities. Thus, (4.24b) should not be taken as evidence against the significance of the proportional/intersective distinction for PV any more than (4.29b) should be seen as counterevidence to Szabolcsi's monotonicity constraint on TP and QP (and the witness set analysis that follows from it).

Note, however, that I have argued that apparently denotational semantic constraints such as the one against proportional quantifiers appearing as foci in PV are in themselves derived from more general, cognitively significant procedures; the semantic constraints are not encoded as such, in features or any similar mechanism. Hence,

the broader picture that is developing is one of denotational semantic concepts being relevant to the grammar just in so far as they reflect cognitively and communicatively significant distinctions. Such a conclusion might trouble the logician, who relies on strict mathematical principles to define the scope of application of his or her insights, but it should not worry the linguist who professes a genuinely mentalist perspective, to whom the relationships between different ways of characterising linguistic phenomena should be as interesting as the content of any one of those characterisations. Furthermore, scientifically-minded linguists need not be as afraid to consider the role of cognitive/communicative factors as they perhaps have been in the past. The perspective of frameworks like RT and Dynamic Syntax shows that the relationship between linguistic structure and the ways it is employed in context is neither a dispensable part of characterising grammatical knowledge, nor a domain about which nothing useful can be said because of its breadth and complexity.

'Counterexample' 3: a different kind of proportionality

The remaining example of a proportional quantifier in PV, (4.24c), obviously cannot be explained in terms of its internal syntactic complexity. Indeed, on the fact of it, *kevés N* 'few N' is a counterexample not only to the general idea that proportional quantifiers cannot be focused, but also to the particular explanation that I have been putting forward. It parallels *a legtöbb N* 'most N' and *minden N* 'every N' in being syntactically very simple and therefore offering no possibilities for focus on some non-proportional sub-part of the quantifier. Nevertheless, it not only may appear in PV, but is in fact strictly PV-only, under its more clearly proportional reading ('few N') as much as under its apparently intersective reading ('a few N').

In one way, this situation is in fact predicted by factors which have already been mentioned: *kevés N* is monotone decreasing (in fact most clearly so under its proportional reading) and therefore is expected not to surface in TP or QP. Still, in the absence of any principled motivation to claim that the monotonicity constraint should 'outrank' the proposed proportionality constraint, it remains an apparent counterexample to the latter.

The answer to why *kevés N* is not incompatible with the interpretation of PV lies in the particular kind of proportional reading which this quantifier can take on. Proper consideration of this fact proves it to have two desirable consequences. First, the most useful representation of *kevés N* as a GQ proves (unlike other proportional

quantifiers) to include a single constituent (i.e. something construable as a predicate) that corresponds to the quantifier, thus allowing focus on the quantifier in PV. Second, the apparent ambiguity of *kevés N* between a proportional and an intersective reading is reduced to a matter of interaction with context, with just one lexical entry (with one basic semantic interpretation) necessary for *kevés*.

Unlike 'most N' and 'every N', 'few N' does not require the quantifier to be read as proportional to its own restrictor set. For example, while *few* in *Few students are taking the exam this year* may be proportional with respect to the (contextually salient) set of students: 'few of the contextually relevant set of students (e.g. those in a particular class) have opted to take the exam', it may instead be interpreted as being proportional with respect to some other contextually relevant set or amount, an obvious alternative in this case being the number of students typically expected to take the exam in question each year. Hence the same sentence may express 'there is only a small number of students taking the exam this year', even in the situation in which every current student is taking the exam—that is, there exist only a few current students (note that there is no contradiction inherent to the sentence 'Few students are taking the exam this year, even though none of this year's students have opted not to take it.').

The latter reading is the one that appears to be intersective, but it is in a sense no less proportional than the first reading. 'Few' is always proportional in that it always requires some point of comparison, but this point of comparison may vary. Given that languages like Hungarian make no lexical distinction between the different possible readings of 'few', it is reasonable to assume that the relevant point of comparison can be established from purely contextual information. This means that *kevés* requires only one lexical entry and also—significantly—that the semantics of that lexical entry will make no reference to the quantifier's being proportional with respect to the N′ restrictor set of the QNP. Instead, this quantifier can be marked as being proportional in respect of some unspecified part of the context, leaving the precise part to be identified inferentially in the course of processing.

This idea is in fact recognised in many existing semantic analyses of 'few'. Heim & Kratzer (1998), for example, give truth conditions for English *few* essentially as in (4.30).

(4.30) $|\{x : P(x)\} \cap \{y : R(y)\}|$ **is small**

The important point in terms of appearance in PV is that this kind of representation, which has been shown to be desirable for independent reasons, includes the contribution of the quantifier alone as a discrete constituent part that makes no reference to another part of the representation. It may therefore be thought of as a predicate and focused in PV.

This is not only true of 'few'. The same reasoning applies equally to 'many' (Hungarian *sok*)—being monotone increasing, this is not PV-only, but is able to appear in PV. Szabolcsi does not seem to view this as an anomaly, using *sok* without further comment to illustrate the effects of PredOp/PV in her example (59), reproduced here as (4.31).

(4.31) Tegnap sok diákunk betegedett meg.
yesterday many student-1pl sickened VM
'The students of ours who fell ill yesterday were many'

In fact, *kevés* and *sok* should be expected in PV for the same reason: they are both a special kind of proportional quantifier, which is proportional with respect not to the N′ restrictor set as such, but to an underspecified contextual set. This allows them the syntactic distribution of an intersective quantifier in Hungarian and a range of interpretations that include both archetypally proportional and more intersective-like readings.

4.5.3 Proportionals in PV and the idea of 'counting'

To summarise the preceding sections, there are semantically definable constraints on appearance in PV which account for the existence of non-PV quantifiers. However, these constraints are not grammatically encoded, but rather follow from the more general interpretive procedure associated with PV focus—interpretation as a predicate in the context of a presupposed focus frame—and the pragmatics of QNP use in this context, which leads to focus on the quantifier rather than the whole QNP. The denotational generalisation that proportional quantifiers are non-PV therefore holds to the extent that 'normal' proportional quantifiers are not themselves able to be the narrow focus in PV and, consequently, those proportional quantifiers that are not structurally complex in a way that allows for focus on a sub-part of themselves are completely barred from PV. It also follows that 'normal' proportional quantifiers differ in this respect from the class of quantifiers, including *kevés* 'few', that are proportional with respect to some underspecified aspect of the context.

In the light of this re-assessment of the constraints on PV, what remains of Szabolcsi's observation that the quantifiers which can appear in PV "perform a counting operation"? In the end, this appears to derive simply from the question of the internal complexity of quantifying determiners. The presence of an explicit numeral within a complex determiner implies a degree of internal syntactic complexity that allows for focusing on sub-parts of the quantifier and guarantees the presence of at least one suitable predicate for this, in the form of the numeral itself. It would appear to be simply this incidental structural fact which gives the impression that 'counting' bears some connection to the ability to appear in PV. This seems to be as much substance as the notion of 'counting' can really have; it is difficult to see how any extension of the common intuitive meaning of the word 'counting' could successfully distinguish between the quantifiers 'most' and 'few', for example.

4.6 Contrastive focus on non-PV quantifiers

One loose end that remains in my account of quantificational constraints is the derivation of sentences like (4.21), repeated here as (4.32), which was used above to demonstrate the complete inability of quantifiers like *minden* 'every' to appear in PV when focus is interpreted as falling on the quantifier. This is consistent with the the proposed analysis of the procedure associated with PV, since this kind of quantifier, being proportional, corresponds to no single predicate within its generalised quantifier representation, nor does it include any lexicalised predicate that could function as a narrow focus. However, (4.32) does involve a contrastive/corrective focus reading, the applicability of the universal quantifier being asserted to the exclusion of other quantifier values (in this case, in effect, 'every' rather than 'some (but not all)'). In the context of the analysis developed in this chapter, this brings up two obvious (presumably connected) questions. First, how is a contrastive focus reading of this kind of quantifier possible at all? Second, how is this conveyed through the use of QP, which has been seen to prompt the creation of a witness set and therefore, typically, a topic-like reading?

(4.32) MINDEN gyerek megijedt / *ijedt meg.
every child VM-feared feared VM
'EVERY child got frightened (e.g. not just the girls).'

It would appear that, even though the presupposed material in such an example is indeed logically 'prior', presupposed information, it is not packaged as such in the grammar—since it cannot be. There is little independent evidence for this to

be found in examples like (4.32) themselves, although I take the general coherence and predictive power of the account presented above with regard to quantificational evidence (as well as evidence regarding focus and negation presented in Chapter 7) to provide strong empirical support for this position. With regard to the likes of (4.32), one can only observe that the phenomenon in question is distinctly 'marked', being restricted to contexts in which its contrastive function is made immediately accessible by highly salient alternative quantificational values (such examples almost inevitably have a 'corrective' purpose). This is at least consistent with the use of QP, as I mention below. Nevertheless, given the state of the available evidence, I confine the analysis of such examples to a few speculative comments.

I propose that the derivation of the appropriate reading from this kind of structure does not involve the invocation of focus frame (containing a presupposed eventuality), with the concomitant determination of possible contextual alternatives, but is rather based on the drawing of a contrast between whole propositions. Within the expression of the asserted whole proposition, the QNP representation may be built up according to the witness sets strategy, reflecting the use of QP. The idea of contrasting whole propositions is consistent with the necessarily strongly contrastive/corrective interpretation of examples like (4.32). As discussed in Chapter 3, section 3.2.1, the presupposed focus frame strategy associated with PV can result in virtually 'incidental' exhaustivity, thanks to potential alternatives being contextually determined, but not necessarily highly salient in the context (and indeed this was argued to be the case with most numeral quantifiers in PV). On the other hand, if a particular whole proposition is required to form the point of contrast with another whole proposition, the former must be highly salient in the immediate context.

Assuming this kind of analysis, the interpretive procedures involved in such instances of 'focus in QP' should be thought of roughly as follows. The syntactic structure encodes a 'logical subject first' reading, as in any use of QP, but phonological cues (a pitch accent on only the quantifier) indicate that only the quantifier within the subject witness set is newly asserted information. This serves the double purpose of preventing a sense of excessive redundancy, given the apparent assertion (syntactically) of largely presupposed information, and of indicating how this repetition of 'old' information can be made relevant: by paying attention to the quantifier. By implication, the addressee should recover from the context a salient

proposition that differs only in the value of the quantifier at this point in the proposition and draw a contrast between this and the newly communicated, but largely 'old', proposition.

It might seem that the availability of this strategy as a 'get out' for non-PV QNPs should mean that it is available as an alternative way of creating contrastive readings of any expression. That it is in fact restricted to non-PV quantifiers is explicable in terms of relative processing effort. The dual procedure of setting up the apparent assertion of a proposition, only to override this by marked phonological strategies, is unnecessarily complex as long as the simpler 'focus frame first' procedure is available through the use of PV[16].

[16]An interesting partial parallel exists in English. The *it*-cleft construction does not allow QNPs like *every N* in the clefted position (e.g. **It's every child that got scared (not just the girls)*), but they can be given a contrastive/corrective reading when focus is signalled by purely phonological means. In English, purely phonological focus is not restricted to these quantifiers but nor is it a marked operation as it is in Hungarian, which generally has quite rigid stress-placement rules

Chapter 5

Dynamic Structured Meanings: Predication and Information Structure

5.1 Overview

Up to this point, my analysis of the PV position of Hungarian has concentrated on its use in the expression of a particular kind of focus reading, often claimed to be exhaustive focus. I have shown that an inferential-pragmatic account of this phenomenon is not only sustainable, but more explanatory and more theoretically parsimonious than an analysis based upon matching static representations of syntax and truth-conditional semantics. As well as allowing for a more empirically adequate notion of the kind of focus readings found in the PV position (Chapter 3), the dynamic, pragmatically-informed approach also proves to explain, without further stipulation, a number of otherwise unexpected and apparently unrelated constraints on quantifier distribution among the linearly pre-verbal positions of the Hungarian sentence (Chapter 4).

It is now time to broaden the analysis, returning to a point originally made in Chapter 1: that the surface syntactic constructions of Hungarian give little reason to separate PV into different abstract positions; a suitable 'dynamic' theoretical perspective both precludes such abstract syntactic positions and opens up a potential alternative form of analysis, in the form of underspecified structure-meaning relationships that can be filled out by inferential pragmatic processes. This means that PV need not be seen as comprising one discrete 'focus position' and a series of other positions that host other VM-inverting pre-verbal expressions, as well as another for VMs themselves. Instead, the mutual exclusivity of all of these in PV

can be analysed as a result of 'competing' for a certain relationship to the tensed verb.

An analysis of this kind is developed over the remainder of this thesis. The discussion of VMs is mostly delayed until the next chapter; in the current chapter the basis of the analysis is put in place through the continued investigation of the information-structural significance of PV. However, the emphasis is no longer simply on the expression of narrow focus, but rather on the connections between this and the creation of 'topic-comment' readings, in which the tensed verb is not preceded by a PV expression (other than any VM) and its denotation is understood to be part of the (broad) focused part of the utterance[1]. As noted in Chapter 3, this combination of factors suggests that the syntactic relationship between the 'focus position', PV, and the tensed verb is not simply an arbitrary structural fact.

The analysis built up in this chapter is based upon these observations, taking into account the significance of the verb's role in relation to the discourse as well as the ways in which other expressions are interpretively 'verb-like' when they bear a certain relationship to the verb's syntactic position—that is, when they are PV foci. This meshes with an observation that formed a key part of the explanation of quantifier syntax in Chapter 4: that narrow focus readings involve the granting of a special status to a single predicate that is made available by the form of the utterance.

The resulting account brings together narrow foci and the 'comment-initial' verbs of topic-comment sentences via the notion of 'main predication', a term that I coin for the act of predication that creates a propositional form out of a non-truth-conditional representation. This idea relies on two basic stages of argumentation, which form the overall structure of the current chapter. First, the predicative nature of focus is established and the idea of main predication motivated. Then a suitable form of representation is developed; one in which the change from non-propositional to propositional forms is effected by predicates contributed by explicit linguistic material, rather than by abstract semantic mechanisms.

It is important to note that the idea of main predication is not necessarily the same as the logical predicate (or focus) of the sentence, since the proposition-creating effect of main predication takes place at one particular point in the parse, whereas

[1]Recall that I reserve the description 'topic-comment' for the kind of reading that involves a broad focus, ascribing some property to an individual participant entity—and, by extension, also for the kind of sentence that produces this kind of reading. 'Comment' is therefore co-extensive with 'broad focus', but not with 'focus' in general.

the creation of the logical predicate can be a relatively complex matter, in the case of a topic-comment sentence (i.e. one with a broad focus). While the logical predicate and main predicate are the same in the case of a sentence containing a narrow focus, in topic-comment sentences, the main predicate is only one part of the broader logical predicate; specifically, the verb. Therefore, while 'logical subject' refers to a concept familiar from the literature (under various names), 'main predicate' is a new piece of terminology that appears not to have any exact predecessor.

5.2 Focus and predication

5.2.1 Focus and focus frame as predicate and logical subject

The idea that a narrow focus in effect acts as a predicate that takes the rest of the sentence as its term was introduced in the previous chapter, where Szabolcsi's (1997b) 'true generalised quantifier' mode of semantic assessment was shown to be a matter of applying a cardinality predicate to the rest of the sentence. In terms of generalised quantifier theory, it may be the case that the rest of the sentence can be conceptualised as the intersection of two sets, but this is not significant for the overall analysis of PV, which subsumes the QNP examples in the broader matter of the perspective taken on semantic material as presupposed or asserted.

The intersective quantifiers found in PV are thus nothing more than special cases of an interpretive procedure that involves the conceptualisation of a focus frame—made up of 'the rest of the sentence', in Szabolcsi's (1997b) terms—as a term to be predicated over. This is quite consistent with the analysis of a focus frame as a presupposed piece of information: since it is recovered from the cognitive environment as a unitary 'chunk' of information, it seems appropriate to recognise its semantic type as being that of a term of some kind. Given this view, a proposition created by presenting a focus frame and a narrow focus is effectively made up of a single act of predication—the focus as predicate being applied to the focus frame as its logical subject. This provides an elementary link to topic-comment sentences, which are more visibly cases of predication over a logical subject (where the predicate happens often to be fairly complex).

Note that this necessitates the separation of the notion of logical subject from the idea of 'topic', as the latter is applied to expressions found in a particular sentence-initial position in languages like Hungarian (that is, the position referred to in

Chapter 4 as 'TP'). I shall refer to such expressions here as 'syntactic topics'. In a topic-comment sentence—that is, one that contains no narrow PV focus—the syntactic topic is typically the logical subject, but in a sentence that contains a narrow focus the logical subject is a broader part of the sentence (everything but the narrow focus), as argued above. This means that the syntactic topic is merely a part of the logical subject in the presence of a PV focus. The function common to all syntactic topics should be thought of more in terms of the traditional idea (to some extent connected to Vallduví's (1992) 'Link') that sentence-initial topics provide a 'starting point' for the assimilation of the information conveyed via the utterance in which it appears.

It may not be necessary to go far beyond this kind of general characterisation within a dynamic, inference-based approach: a variety of inferences might be triggered by the strategy of drawing the addressee's attention to a particular manifest entity as an initial step in setting up the context for the interpretation of the rest of an utterance[2]. This may well coincide with the status of logical subject, when the point of an utterance is simply to pick out a certain entity and predicate a relevant property of it, but it may be only the first step in guiding the addressee to the right context for a different kind of act of predication. Though I do not attempt a more thorough analysis of syntactic topics in this thesis, the difference suggested here between syntactic topichood and logical subjecthood should become clearer in section 5.4.1, below, where my dynamic analysis of Hungarian PV is exemplified.

As Rooth (1996) notes (see Chapter 3, section 3.1.2), the relationship between information-structural distinctions and the partitioning of a sentence into logical subject and logical predicate is not new. Furthermore, the idea that narrow foci somehow carry out a predicative function otherwise associated with the tensed verb is reflected in data from numerous other languages (and in some of the descriptions found in the literature on them). One example with clear parallels to Hungarian is to be found in Paul's (2001) analysis of the focus position of Malagasy. This not only shows a clear case of syntactically-signalled foci occupying a position that is unarguably related to the usual position of tensed verbs, but also demonstrates other elements of both structure and interpretation that imply that these foci are predicates that take the rest of their respective sentences as their logical subjects.

[2]There are nevertheless considerable complexities associated with sentence-initial expressions, especially when 'contrastive topics'—those featuring rising intonation—are taken into account. See, for example, Gyuris (2002).

Malagasy is a strongly verb-initial language, yet it features a focusing construction that involves the focused expression appearing sentence-initially. This leads Paul to analyse such foci as predicates, semantically parallel to intransitive verbs. In addition to the involvement of the unmarked verbal position in the relevant construction, these foci resemble Hungarian PV foci in various other significant ways, including an exhaustive reading and incompatibility with certain quantifiers (including universal quantifiers).

While the position of the focused expression is suggestive of predication, the idea that the rest of the sentence forms a unitary subject of predication in such constructions also has a structural reflex in Malagasy. The particle *no* follows a sentence-initial focus and Paul argues that this is a kind of relativiser, which in effect creates a headless relative from the remainder of the sentence. This, she argues, accounts for the presupposed nature of this material, a headless relative being a form of definite expression. The construction is exemplified in (5.1) (Paul glosses *no* as DET, more or less arbitrarily).

(5.1) I Sahondra no nanapaka ity hazo ity.
Sahondra DET PST.AT.cut this tree this
'(The one) who cut this tree was Sahondra.'/'It was Sahondra who cut this tree.'

While Hungarian has no such particle, the range of features that the two focus constructions share is sufficient to support the idea that some very similar process of interpretation is involved. It seems reasonable to view this aspect of the Malagasy construction as essentially making explicit something that is inferred in the case of Hungarian PV—that the non-focal part of the sentence forms a presupposed unit that acts as subject of predication for the predicative function of the focus. In the relation between verb position and narrow foci, the parallel between the two languages is clearer, though each manipulates its own particular structural properties to signal this. In Malagasy it is the independently identifiable sentence-initial position normally reserved for the verb that is taken by a focused item. In Hungarian also a focus 'usurps' the expected position of the tensed verb, but in this case this is recognised by virtue of linear position relative to the verb, since the verb's 'neutral' position is in any case sentence-medial, and by taking over the pitch accent that is associated with the verb in a 'neutral' sentence.

Furthermore, Paul shows that the Malagasy data is far from unique, citing a number of other verb-initial languages that feature comparable focusing constructions. This

is in fact merely a particular case of the long established cross-linguistic observation that syntactic foci are frequently found close to the normal verbal position (see, for example, Jo 1995).

5.2.2 Main predication

The implication of such evidence is that there is, at least in languages like Hungarian and Malagasy, one act of predication in the building of each proposition that is particularly significant, in that it either is the focus of the sentence or introduces the focus of the sentence. It is notable that in both cases this predicate takes the presupposed material of the sentence as its logical subject and its application produces at least the basis of a truth-conditional assertion. In dynamic terms, the application of this predicate is the point at which the assertion of a propositional form is brought about, where previously there was only some form of incomplete, non-truth-conditional representation. This can be likened to the application of existential quantification over an eventuality in Davidsonian semantic representations: a mere description of a kind of entity is thus converted into a truth-conditional formula (this parallel is pursued in section 5.3.2). I refer to this henceforth as the 'main predicate' of the sentence and I propose that the primary effect of the PV position of Hungarian is to signal that its inhabitant has the status of main predicate (the precise syntactic nature of the PV position is discussed further in section 5.4).

The significance of main predication is only visible from a dynamic perspective on the relation between structure and interpretation that gives inferential processes a broad range of application. This is because the kind of information-structural reading that arises in any given sentence (as well as other kinds of interpretive effect, as shown in the next chapter) depends on the kind of expression that is found in PV. After all, the status of main predicate is not something that in itself forms part of the interpretation of a sentence; rather, it is a trigger for the drawing of inferences over the particular predicate that is signalled to have this status. In other words, recognising a predicate as the main predicate causes an addressee to ask "If this predicate is the main predicate, what does this say about how I should proceed in interpreting the sentence as a whole (given the current context)?" It is the answer to this question that ultimately leads to particular information-structural effects. Interpretation of this kind is therefore inherently inferential: the processing of linguistic material in a certain structural configuration does not lead directly to certain kinds of interpretation, but rather the particular linguistic material encountered within the structure in question (as well as its relation to the

broader context) leads to different ways of interpreting that structure. The actual nature of the inferences triggered by the attribution of main predicate status to different kinds of expression is outlined in the next section.

5.2.3 Basic inferences over main predicates

The 'main predication' account of PV states that an expression that is found in PV (or the relevant sub-part of this expression, in a case of 'pied-piping') is to be taken as the main, proposition-creating predicate of the sentence. Here I outline the consequences of this for main verbs and for non-verbal expressions, such as referring NPs (the special case of VMs being delayed until the next chapter).

First, consider what happens if a non-verbal expression is encountered in PV. The requirement to interpret this (or an identifiable part of it) as main predicate entails that some term must be contextually available as the logical subject of this predicate. Yet a non-verbal expression cannot be a 'comment', a property ascribed to a topical entity of the kind that thereby creates a proposition. An NP, for example, can be viewed as a predicate in a neo-Davidsonian representation (see section 5.3.1, below), but only in the sense of a function that relates an entity to an event; it can ascribe nothing to another entity. Instead, some more complex subject of predication must be found—and since a proposition must result from this, it must be something that is richly specified enough to in effect represent a proposition that lacks precisely the kind of non-verbal expression that is the main predicate. Therefore, the requirement to treat a non-verbal expression as main predicate triggers the search for a presupposed focus frame. The precise identity of this focus frame term may be indicated by explicit post-focal material, in case this is not immediately obvious in the context, but may be recovered directly from the context—foci do of course frequently appear with all presupposed material elided (particularly in answer to explicit context questions, for example).

This contrasts with the situation that typically arises when a verb is encountered in the position that signals main predication status. A verb's denotation is a particular kind of predicate, conceivable as a relation between entities and/or between entities and an eventuality. As such, the assertion of a verbal meaning may be taken to involve the introduction of a whole template of argument positions, each of which of course bears its own relation to context. One or more of these may be explicitly introduced as being already manifestly instantiated by contextually identifiable entities, in the form of a pre-verbal topic. Arguments whose identity is presupposed

in this sense may of course also remain implicit, to be recovered purely on the basis of contextual factors, in a 'pro-drop' language like Hungarian. Non-presupposed arguments may also exist, if the verb is not intransitive—these are the 'information foci' of É. Kiss (1998a), which are always part of a broad focus, as argued in Chapter 3. Importantly, knowledge of the identity of the entities that instantiate such arguments is not necessary for the creation of a propositional form; a mere placeholder will allow the creation of a truth-conditional assertion, whose precise content can be subsequently elaborated by the inclusion of any explicit 'information focus'.

For example, at the point of processing the verb *szereti* 'love' in (5.2a), assuming it bears a pitch accent, a proposition of (roughly) the form in (5.2b) can be assumed[3].

(5.2) a. Ferenc szereti Marit.
Ferenc loves Mari-ACC
'Ferenc loves Mari.'

b. *love'*(*ferenc'*,**someone/something**)

The topic *Ferenc* provides an explicit subject of predication in this case and the predicate 'love someone', introduced by the verb *love* alone, is sufficient to create a propositional form when applied to this. The subsequent processing of the accusative NP *Marit* represents an act of elaboration of existing material within the proposition. In other words, contrary to common assumptions, a complex logical predicate like 'loves Mari' is not necessarily built up in advance of its application to the logical subject, either on the semantic level or on a syntactic level (that is, there is no motivation to posit anything like a VP node that groups together elements of the logical predicate). This fits well with the prosodic structure of a Hungarian topic-comment sentence: recall that each expression that forms part of a comment—i.e. each 'information focus' expression—bears a pitch accent (Kálmán 1985a; Rosenthall 1992; Roberts 1998), a fact that may be interpreted as indicating that these individual sub-expressions of a comment, or complex logical predicate, are processed separately from each other—certainly, they are not grouped together by prosody as closely as they might be.

[3]In fact, the existence of the 'definite conjugation' in Hungarian means that the first two words of (5.2a) actually allows for a slightly richer representation: something like *love'*(*ferenc'*,**him/her/it**). This is not crucial to the point at issue, however. Note that a verb from the 'indefinite conjugation' is still proposition-creating in the relevant sense, such that the first two words of *Ferenc szeret egy diákot* 'Ferenc loves a student' allows for the representation in (5.2b).

For obligatory arguments at least, this kind of process can be handled technically by the use of objects like the 'metavariables' of Dynamic Syntax, which can act as 'placeholders' in a semantic representation. This allows the verb to introduce a whole propositional template (minus tense) at the point at which it is encountered, with metavariables occupying each argument position—an idea that is clearly consistent with the current analysis of verbs as common (and in some sense 'unmarked') main predicates. This is the approach taken by Kempson *et al.* (2000:72) in their analysis of scrambling effects in Japanese, for example. Any existing topic, whether explicitly stated or simply contextually manifest before the verb is encountered, can immediately be substituted for the relevant argument metavariable on processing the verb (case marking guides this process), leaving a propositional representation like (5.3) (where **U** is a metavariable), which is essentially equivalent to (5.2b).

(5.3) $love'(ferenc', \mathbf{U})$

Non-obligatory elements, such as adjuncts and certain arguments of verbs of variable polyadicity, are no more problematic for the view that the verb alone acts as main predicate. After all, the omission of an optional (or not predictably obligatory) element almost by definition does not prevent a representation from being taken as fully propositional. Optional arguments and adjuncts may be dealt with in terms of 'bridging inference', which Bittner (2001) argues to operate at sub-clausal levels, as well as inter-clausally[4]. In other words, the processing of an adjunct following that of a verb leads to a re-assessment of the valence of the main predicate; in effect adding a pronominal argument to the representation, which is immediately substituted by the material that triggers this process. A roughly equivalent proposal, couched in terms of structural and interpretive underspecification and relevance-theoretical inference, is made by Marten (1999).

Both Bittner's and Marten's proposals are intended to be much more general, covering the whole range of arguments and adjuncts. As such, they fit well with fully 'decomposed' neo-Davidsonian semantic representations, in which all participants are represented alike, as conjoined predicates over events (see section 5.3.1). For expository reasons I do not follow up this possibility here in the lexico-syntactic part of the story, instead restricting the inferential introduction of participants into

[4]In fact, Bittner argues that practically all semantic composition can be viewed in terms of bridging inference; an idea that opens up intriguing, radically inference-based perspectives on grammar and interpretation when allied to a dynamic approach to structure. It is possible that my analysis of Hungarian PV could be re-cast in these terms, though this would require careful consideration of the definition of a full propositional representation for the purposes of identifying main predication. I leave this as a possible avenue for future research.

semantic representations to non-obligatory participants. However, the existence of such forms of explanation demonstrates that the processing of a verb alone can unproblematically provide the kind of predicate over presupposed entities that is sufficient to create a full propositional form. This is the basis of how 'neutral' word order in Hungarian (i.e. when the main verb is not preceded by a narrow focus or negation) produces topic-comment readings. As section 5.4.1 discusses, this is not in fact the only possible reading of such word orderings, but it is the usual one—both of which facts are straightforwardly explicable in terms of the notion of main predication and the influence of context on the interpretation process.

5.3 Representing main predication

It is clear that the notion of main predication requires a dynamic form of representation with certain crucial features. One of these is that it must provide some mechanism whereby a predicate made available by the natural language string may make the difference between a non-truth-conditional description and the assertion of a propositional form. Another is that it must incorporate some suitable form of 'structured meaning' representation, such that distinctions in information structure—that is, in the way in which the propositional form is built up—are reflected in the final representation. I address the latter point first, showing how an existing proposal in the literature on focus provides the basis for a representation which is suitably structured and which draws together a number of important factors already mentioned in the current analysis of Hungarian PV focus.

5.3.1 Eventualities and structured meanings

Herburger's (2000) theory of focus in effect involves the synthesis of two important ideas that arose in the analysis of Hungarian PV focus in Chapter 3: on the one hand, the different possible cognitive perspectives on the material in a given sentence, relating to differently structured representations of it in different contexts; on the other, the idea of conceptualising the content of propositions in terms of eventualities. These are brought together in Herburger's work in the sense that it proposes a form of structured meaning representation that is based on the explicit representation of eventualities. Specifically, Herburger proposes that the focus/presupposition distinction[5] should be represented through tripartite structuring of quantification

[5]Herburger in fact refers simply to 'focused' versus 'nonfocused'.

over eventualities. In this section, I briefly present the fundamentals of the neo-Davidsonian semantics on which Herburger's proposal is based, and point out the appropriateness of this kind of representation for conveying information-structural effects. Herburger's ideas are then reviewed, in advance of my own extension of neo-Davidsonian representations.

Eventuality-based semantics

Neo-Davidsonian semantic representations (Parsons 1990) involve quantification, in most cases existential quantification, over a variable that represents the eventuality expressed by the sentence in question. Parsons (1990) uses different variables, e and s, for events and states, respectively, but my arguments do not make reference to this distinction and therefore I shall use a single kind of variable, e, for 'eventuality'. Following convention, and for the sake of brevity, I shall nevertheless refer to this variable as the 'event variable'. The reification of eventualities as event variables in the semantic representation is suggested by linguistic phenomena such as the pronominal anaphor in (5.4): *it* in the second sentence seems to refer to an entity, but this cannot be understood to be any individual; rather it appears to be the whole eventuality described by the first sentence.

(5.4) John asked Mary to look after his wallet. He regretted it almost immediately.

Once eventualities are conceived of as entities, which can have any number of properties predicated of them, the properties of a particular eventuality—the detailed content of a proposition—can be expressed as the conjunction of predicates over eventualities. Arguments and adjuncts are conceived of as predicates but still related to verbs, since the functions from entities to eventualities that they denote are essentially thematic roles. Hence (5.5a) can be given a (simplified) representation in the style of Parsons (1990) as (5.5b).

(5.5) a. Rosalía wrote a poem.
b. $\exists e$ (*Write*(e) & *Past*(e) & *Agent*(e,*rosalia*) & *Theme*(e,*a-poem*))

As Schein (1993:331ff.) notes (see also Parsons 1990, 99ff.), the controversial nature of theta-roles need not reflect directly on the legitimacy of such representations. These require only that the functions that relate participants to events be distinguished relative to each verb; they do not require that such functions are necessarily

consistent across different verbs. For this reason, I later adopt less specific theta-roles in my own representations; see section 5.3.2.

The 'decomposition' of verb phrase meanings into separately applied predicates answers one of the major problems raised by Davidson (1967): how to maintain the common element expressed by a verb like *butter* in sentences like (5.6a) and (5.6b) and thereby reflect the entailment relations between their respective semantic representations.

(5.6) a. Jones buttered the toast in the bathroom with a knife at midnight.
b. Jones buttered the toast.

Davidson points out that to treat the verb *butter* as being of variable polyadicity—that is, as a five-place predicate in (5.6a) and a two-place predicate in (5.6b)—is unsatisfactory in a number of ways. If the verb is treated as being lexically multiply ambiguous, this ignores the clear intuition that *butter* is really the same predicate contributing the same material in each case (and ignores the apparent structure of the language). Furthermore, this ambiguity might have to be infinite, since it is not clear that an upper limit can be placed in any principled way on the number of participants that can be associated with any given verb. This fact also precludes the alternative strategy of assuming that the maximum number of argument positions for a given verbal predicate is present in the logical form of every sentence containing the corresponding verb, whether or not they are linguistically realised (which would also go against intuitions about what sentences like (5.6b) actually convey). Such problems are eliminated by viewing each participant in (5.6a) as a predicate over a single eventuality and taking each to be conjoined in turn to the other material in the sentence. This not only maintains a single predicate $butter'(e)$ in both (5.6a) and (5.6b), but also correctly ensures that the former entails the latter, via a simple operation of conjunction elimination.

Parsons (1990) completes the justification for fully decomposed representations like that in (5.5b) by arguing that even verbs with syntactically obligatory arguments are underlyingly one-place predicates. He points out (1990;97ff.) that a verb like *stab*, which might be thought of as requiring an Agent and a Theme can be interpreted in the absence of a Theme in sentences like *Brutus stabbed and missed* and, arguably, even in the absence of an Agent. The latter case is illustrated by the fact that an interpretation is readily available for the agentless passive *I was stabbed* even in a

context like 'I had a dream last night in which I was stabbed—but there was no one there who could have stabbed me'[6].

The complete decomposition of propositions into strings of conjoined predicates clearly opens up possibilities for representing information structure within semantic formulae. Because such formulae do not require hierarchical structure to express basic predicate-argument relations, their elements may be freely structured for other purposes. This seems particularly appropriate in the analysis of a language like Hungarian in which basic word order phenomena like those under discussion in this thesis show virtually no subject-object (or other role-based) asymmetries. Perhaps surprisingly, this potential has rarely been exploited. The one thorough existing attempt to relate neo-Davidsonian decomposition to information structure, Herburger's (2000) treatment of English, is reviewed below. My proposal, which uses neo-Davidsonian representations to distinguish different instances of main predication, is then developed in section 5.3.2.

Herburger (2000): structured eventualities

Herburger's principal insight is the recognition that the string of conjoined predicates that specify the properties of the existentially quantified eventuality can be structured in terms of a tripartite quantificational structure, parallel to that given to generalised quantifiers. That is, some predicative material may be considered to be part of the restrictor of the quantification, while the remainder will be in its nuclear scope. The interpretive significance of this, Herburger suggests, is that it can be seen as an indication of the information structure of a sentence at the level of its semantic representation. In Herburger's terms, material that is part of what the sentence is 'about' (a notion that effectively translates as presupposed material, in my terms) is mapped onto the restrictor of the quantification over the event variable. Material that is focused, in the general sense of 'newly asserted' (that is, the kind of focus that is identified by the context-question heuristic) is mapped into the nuclear scope of event quantification.

For example, two of the possible information-structural readings of (5.5a), (5.7a) and (5.7b), are differentiated in Herburger's representations as in (5.8a) and (5.8b), respectively.

[6]For a range of further justifications for event-based semantic representations, see Davidson (1967), Parsons (1990), Schein (1993), and useful summaries in Rothstein (1998), Herburger (2000).

(5.7) a. ROSALÍA wrote a poem.
b. Rosalía wrote A POEM.

(5.8) a. [∃*e*: *Write*(*e*) & *Past*(*e*) & *Theme*(*e*,*a-poem*)] *Agent*(*e*,*rosalia*) & *Write*(*e*) & *Past*(*e*) & *Theme*(*e*,*a-poem*)
b. [∃*e*: *Agent*(*e*,*rosalia*) & *Write*(*e*) & *Past*(*e*)] *Theme*(*e*,*a-poem*) & *Agent*(*e*,*rosalia*) & *Write*(*e*) & *Past*(*e*)

Herburger renders the significance of these formulae is as follows:

> The interpretation of [(5.7a)] that is represented in [(5.8a)] states that some relevant event of writing a poem in the past was such that it was a past event of writing a poem and its agent was Rosalía, which amounts to saying that some relevant past event of poem writing had Rosalía as its agent. In contrast, the interpretation of [(5.7b)] given in [(5.8b)] states that some relevant event of writing whose agent was Rosalía had a poem as its theme (and was a past event of writing whose agent was Rosalía). (Herburger 2000:18)

Herburger concludes that "Focus is not a pragmatic or information structure phenomenon; instead, it has a direct effect on the semantic interpretation of the sentence" (2000;47). But, as I have made clear in previous chapters, the fact that something may be expressed at the level of semantic representation does not justify the conclusion that it has nothing to do with pragmatics, since inferential processes must be involved in the creation of a propositional form. In fact, Herburger's overall analysis effectively treats focus not as a semantic phenomenon, but as a syntactic one, since she assumes that focus triggers a restructuring of LF representations prior to mapping from syntax to semantic translations. The nature of this LF process is unclear; Herburger (2000:42,47) recognises that there is no syntactic evidence for it. It would presumably have to be sensitive to prosody as well as to syntactic structure as such—or involve some form of prosodically informed syntactic representation about which Herburger is inexplicit—since both may be involved in the signalling of information structure. In any case, it leaves her analysis with the same problems that attend any attempt to encode focus directly, as discussed in previous chapters: it does no more than other 'structured meaning' approaches to address issues of encoding versus inference in this necessarily context-related domain (Herburger's only concession to the role of context is a 'contextual predicate'

that is present in every propositional representation; see Chapter 3, sections 3.1.2 and 3.2.1, for comments on this kind of strategy in relation to other work).

In this sense, Herburger's proposals do not represent a significant departure from other 'structured meaning' approaches (von Stechow 1991a), in terms of my aims in this thesis. That is, the material within the restrictor of event quantification effectively produces an incomplete propositional form to which something is to be added, just as a lambda expression represents a semantic form that awaits some further material to complete its content. Herburger's exploitation of the tripartite structure of generalised quantifiers in the domain of quantification over eventualities is not therefore of particular use to my analysis—the means by which such structured representations are built up being much more germane to my immediate concerns than the details of their form. Nevertheless, certain aspects of Herburger's representations do suggest that the manipulation of neo-Davidsonian semantic formulae in this way contains the potential to provide a more explanatory account.

One useful fact, noted above, is that the use of explicit event variables allows the process of 'meaningful structuring' to be based upon some integral part of the semantic representation (quantification over the event variable), rather than resorting to the more arbitrary mathematical mechanism of the lambda calculus. While this does not yet fulfil the desired goal of performing this task using predicates made available by natural language sentences, it is a step in the right direction. The use of an event-based semantics also allows in a fairly straightforward way for the conceptualisation of different information-structurally significant parts of the semantic formula as objects of the right semantic type. The restrictor part of an existentially quantified event, being at one level an existentially bound entity, is particularly apt to playing the role of logical subject, while material from the nuclear scope is indeed all predicative material in a neo-Davidsonian representation. Moreover, the simple fact that such representations generalise the notion of predication, such that not only verbs but also arguments and adjuncts are routinely represented as separate acts of predication within a propositional form, is clearly promising with regard to seeking a way of representing the idea of main predication.

What is required is therefore a means of making event-based structured representations dynamic, so that the process of creating the relevant kinds of structure is made clear. This should be based in the application of particular predicates explicitly contributed by the natural language sentence. A mechanism that achieves these two aims is presented in section 5.3.2, following some further discussion of just what this must achieve: what it means to create a proposition.

5.3.2 Making structured meanings dynamic: epsilon terms

The creation of propositional forms

Recall that main predication is taken to be the point at which a propositional assertion is created. In neo-Davidsonian representations, this is achieved by the application of the existential quantifier over an event variable that is attributed with certain minimum specifications. Davidson (1967:117) traces this use of the existential quantifier to Reichenbach (1947) and points out its usefulness in addressing the debatable relationship between a sentence and a proposition—and hence between the formula proposed as the semantic translation of a sentence and a proposition. Without existential quantification, a formula can be viewed as a mere description of an event or kind of event—an act of referring rather than asserting. With the addition of the existential quantifier, however, the formula becomes the representation of an assertion; specifically, the assertion that there is an event that makes the formula true. As such, the existential quantification in a formula like (5.5b) is the part that makes it truth-conditional and therefore this is identifiable as the element that makes it a truly propositional form, rather than a mere description. The connection to my notion of main predication is clear: a main predicate should be definable as the point at which existential quantification over the event variable is introduced, provided the other minimal elements of a propositional form are related to it.

Minimally, a proposition must contain two kinds of restriction on the event variable: a kind of eventuality, as typically expressed by verbs, and a temporal anchor point, which is associated with tense. As noted above, the verbal 'kind of eventuality' predicate may be elaborated by further assertions, but it is the application of such a predicate, rather than the details of its content, that is important for the establishment of a propositional form. These minimal restrictions on the eventuality may, in principle, be asserted at the point of main predication or they may be presupposed at this point—in the sense used throughout this thesis of being manifest in the context and obligatorily so for the required process of interpretation.

A proposition, in skeletal form, may therefore be represented as in (5.9).

(5.9) $\exists e.\ f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)$

$\mathbf{V}$ and $\mathbf{T}_i$ may be thought of as metavariables. A metavariable, as used in Dynamic Syntax (Kempson *et al.* 2000), is in essence a requirement to identify and slot into

the semantic representation some semantic material of a certain kind. In other words, it is a pro-form-like element, which can draw its content from any part of the context (whether explicit or otherwise manifest in the discourse). One way to think of a metavariable is thus as an invitation to draw relevant inferences of a certain kind. Should the context be enriched by the assertion of material that is made relevant by its substitution for the metavariable, this substitution will take place. Hence, in some circumstances, a metavariable may be little more than a placeholder for some required information; in others, it may pick out information that is manifest prior to any assertions made explicitly in the current utterance. $\mathbf{V}$ and $\mathbf{T}_i$ are particular, sortally restricted kinds of metavariable. $\mathbf{V}$ is intended as an abstraction over kinds of eventuality (verb-like predicates); it effectively requires that predicate be found that introduces a certain kind of structure (argument and/or conceptual structure) to the eventuality. The representation of the temporal anchor requires some additional explanation.

My assumptions about the relationship between an eventuality and its temporal anchor follow the suggestions made in Kempson *et al.* (2000:34–35) for the representation of tense information in the Dynamic Syntax framework. There, a propositional formula is treated as a predicate logic formula carrying a temporal 'label', in the form of a metavariable, that represents the index of evaluation for the proposition. Thus, a propositional formula has the form $Fo(\mathbf{T}_i : P)$, where P is a predicate logic formula and *Fo* is simply the 'formula predicate' of Dynamic Syntax, that serves to distinguish the logical representation of interpretation from other, largely procedural, information (such as type specifications and requirements for further information or subsequent steps in a parse)[7]. $\mathbf{T}_i : P$ is true if there is a temporal unit $\mathbf{T}_i$ relative to which P is true.

While this form of labelling thus relates a temporal index to the predicate logic formula, this index is related to other temporal indices in a separate temporal logic system. A full representation of a propositional form in this version of Dynamic Syntax therefore also includes (among other things) a statement such as $Te(\mathbf{T}_i < \mathbf{T}_j)$, where *Te* is a temporal logic equivalent of *Fo* (that is, essentially a mere label, in the form of a predicate that constrains the interpretation of the formula that is its argument but does not itself add anything to the propositional meaning of the sentence) and $<$ is a temporal operator (specifically, in this case, precedence).

[7] By convention, the metavariable $\mathbf{S}_i$ is used for the temporal anchor in Dynamic Syntax. I use $\mathbf{T}_i$ instead, as a clear reminder that this part of my representations deals with temporal matters.

In my representation (5.9), the function f in effect replaces the colon by which Kempson *et al.* show the relation between the temporal index and the predicate logic formula P. This underspecified function may be considered to range over the different ways of relating an eventuality to a temporal interval, such as overlap and containment (see, for example, Kamp & Reyle 1993, Chapter 5). The details of temporal information—how the index relates to other times—is still assumed to be dealt with in a separate system. Therefore, while I bring the temporal metavariable $\mathbf{T}_i$ within the description of the eventuality, no temporal information is introduced by the formula $f(e, \mathbf{T}_i)$ other than the minimum necessary to ensure that a proposition may exist: the fact that the eventuality has some temporal anchor. I therefore take this to be the only contribution associated with tense morphology that can be subject to the same processes as those contributions of other elements of the sentence that appear within the description of the eventuality. This is shown in Chapters 6 and 7 to predict important facts about the syntax of Hungarian. Consequently, certain structural properties of Hungarian can be viewed as support for Kempson *et al.*'s (2000) proposals for the analysis of tense.

I claim that the formula $f(e, \mathbf{T}_i)$ is merely 'associated with tense morphology' since this minimal information can effectively be presupposed in advance of the explicit realisation of tense—every sentence is tensed and every proposition has a temporal anchor. Nevertheless, particular grammatical constructions show that this information is contributed by tense (see Chapter 7), so it must be considered to be redundantly associated with tense on most occasions, rather like the content of unstressed pronouns in non-pro-drop languages like English (though Hungarian tense is itself not so fully redundant, as it contributes to the separate temporal logic system).

Having explained the form of (5.9), let us return to the idea that it contains the minimal elements necessary to create a propositional representation. As noted above, it is in fact not the metavariables, but the existential quantification that really makes this description into a proposition: an assertion with truth-conditions. However, the existential quantifier in this context is highly abstract: it has little to do with any element of the natural language sentence and its exact point of introduction into the semantic representation is unclear. It is therefore of little help in representing the idea of main predication, even though it fulfils a parallel purpose.

What is required to convey main predication is therefore a means of achieving the effect of asserting the existence of an eventuality, and in this manner conferring

truth-conditions to the formula, but through a more concrete individual act of predication. It so happens that there already exists a form of semantic representation that allows exactly this, though it has not, to my knowledge, been applied to event variables in any comparable way before and therefore its potential to demonstrate the creation of propositions through natural language predicates has not been exploited. The required semantic mechanism is the epsilon calculus of Hilbert & Bernays (1939), as modified and presented by Egli & von Heusinger (1995).

The epsilon operator

In the epsilon calculus, when ε binds a variable its effect is to select some referent matching the specifications laid down by any predicates that restrict that variable. That is, it selects a witness of the restrictor set. For example, in (5.10) the epsilon operator selects an individual from the set of cats, assuming that this set is non-empty.

(5.10) $\varepsilon, x\ [cat'(x)]$

Should the variable's restrictor set (the set of cats) prove to be empty, the epsilon operator assigns an entirely arbitrary entity to the variable—so (5.10) as it stands does not represent an existence statement. An epsilon term, whatever its content and internal complexity, is thus not an assertion of any kind, but rather a referring expression. What is required to guarantee existence is an assertion that the referent selected is to be found within the restrictor set—in other words, that the restrictor predicate applied to the variable applies to the whole epsilon term. Hence the equivalence in (5.11a); 'some cat exists' being rendered as in (5.11b).

(5.11) a. $P(\varepsilon, x\ [P(x)]) \equiv \exists x.\ P(x)$
b. $cat'(\varepsilon, x\ [cat'(x)])$

(5.11b) may be thought of as follows: '$\exists x.\ cat'(x)$ because an x selected with respect to $cat'(x)$ is a member of the set cat' (not a completely arbitrary entity)'.

As Egli & von Heusinger (1995) recognise, epsilon terms lend themselves naturally to representations of information structure. An epsilon term, being interpreted essentially as a witness set, proposes an entity as a potential argument for some predicate. As argued in Chapter 4, section 4.4.2, if one seeks a cognitively relevant correlate of this kind of object—a referent to which properties may be ascribed—one comes up with the notion of a 'logical subject of predication'. A predicate taking

an epsilon term as its argument, on the other hand, represents the act of ascribing a property to an independently established entity, which is close to the idea of the assertion of a 'logical predicate'—and therefore to focus. Egli & von Heusinger themselves refer to these 'outer' predicates as 'rhemes' and to material within an epsilon term as the 'theme'. Note that all of this comes from what may reasonably be assumed about the cognitive impact that certain kinds of semantic object can have when employed in a communicative context (in other words, while Egli & von Heusinger do not say so explicitly, their identification of epsilon terms with 'themes' and outer predicates with 'rhemes' must be based on pragmatic relevance considerations.).

Logical subjects carry a presupposition of their own existence, which also arises from simple relevance-based reasoning: to be proposed as a subject of predication, an entity must exist at least in some conceptual sense. This is illustrated by the well-known example *The exhibition was visited by the King of France.* Assuming a topic-comment reading, such that the king is not the logical subject, this sentence tends to be judged straightforwardly false when the hearer is aware of the non-existence of French monarchs, while *The King of France visited the exhibition* causes a sense of 'presupposition failure' rather than clear truth or falsity[8].

The issue of existence readings with epsilon terms therefore involves more than just truth-conditions. Any epsilon term, being communicatively useful as logical subject material, is likely to be *inferred* to denote an existing entity with the properties described, but only an epsilon term that has its own restrictor set predicated of it, as in (5.11b), is *asserted* to exist. Thus, (5.12a) implicates the existence of the cat, while (5.12b) asserts it. (5.12c) shows the usefulness of this distinction and of the epsilon operator's picking out an arbitrary entity in the case of an empty restrictor set: the semantic representation reflects the composition of the natural language sentence and the existence of the topic, being not asserted at any point, is cancellable in line with intuitions—(5.12c) and (5.12d) do not logically contradict each other.

[8]As I suggested in Chapter 3, this is a relevance-based phenomenon. In fact, the most likely effect of uttering latter sentence in context would be to prompt accommodation of the fact that the communicator refers to some existing individual as 'the King of France' for some contextually relevant reason. Only in cases of failure of communication (i.e. misjudgement of the mutual cognitive environment) or deliberate obscurity of expression (which itself relates to particular cognitive effects) would a sense of 'presupposition failure' actually occur. This illustrates how the notion of 'presupposition' involves not specifiable semantic facts but issues of the compatibility of contextual assumptions with how interpretive *procedures* are indicated by linguistic forms. That is, presuppositions are not encoded; procedures may be (and may be inferred), and it is in the nature of certain procedures to require certain contextual conditions.

(5.12) a. $bald'(\varepsilon, x\ [cat'(x)])$ ('The/A cat is bald.')
b. $cat'(\varepsilon, x\ [cat'(x)])$ ('The/A cat is a cat.')
c. $\neg bald'(\varepsilon, x\ [king\text{-}of\text{-}france'(x)])$ ('The/A King of France isn't bald.')
d. $\neg king\text{-}of\text{-}france'(\varepsilon, x\ [king\text{-}of\text{-}france'(x)])$ ('There is no King of France.')

The epsilon operator with event variables

Recall that in a neo-Davidsonian representation, an NP denotes a function (in the form of a theta role) from an entity to an event variable. Combining this with the epsilon calculus, an NP topic—as an example, the nominative proper noun *Ferenc*—may be represented as an epsilon term containing such a function, as in (5.13). Since this thesis does not aim to explicate the nature of theta roles, and since nothing hangs on this (recall the comments to this effect in section 5.3.1), I do not commit myself here to the use of particular roles like 'Agent' and 'Theme', but simply assume that nominative case contributes a function θ_{NOM}, accusative a function θ_{ACC}, and so on. I also refer to these functions as picking out relations like Subject and Object. This is a mere presentational shorthand (a complete theory would of course have to include an account of how more meaningful functions are mapped from morphosyntax into the semantic representation)[9].

(5.13) $\varepsilon, e\ [\theta_{\mathrm{NOM}}(e,ferenc')]$

However, in a richly inferential dynamic account, this is not all the information available at the point of processing a topic. Since a topic introduces an utterance that is to convey a proposition, it also carries the expectation of the essential elements of a proposition, as presented above in (5.9). The broader conception of a topic is thus of a theta-marked subject of predication which requires a temporally anchored eventuality to be predicated of it. Using the notation introduced above, this is represented as in (5.14).

(5.14) $\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')]$

This epsilon term picks out an eventuality from the intersection of the set of eventualities with some verb-like structure, the set of eventualities with a temporal anchor

[9] As Ronnie Cann has pointed out to me (personal communication), something like the functions θ_{NOM}, θ_{ACC}, etc. might be maintained and thought of as a set of special, partially restricted metavariables that are to be instantiated, via relevance-based reasoning, by the detailed, idiosyncratic participant roles associated with particular verbs. For example, θ_{NOM} would be instantiated by the 'hitter' role in the context of the verbal predicate *hit'* and the 'thinker' role in the context of *think'*.

$\mathbf{T}_i$ and the set of eventualities that have Ferenc as Subject—provided that none of these sets is empty, in which case the entity selected will be arbitrary with respect to that set. At this point, the existence of some eventuality, some anchor and Ferenc-as-Subject is therefore implicated, but not asserted; the information represented so far is not propositional.

However, the ground is laid for any subsequently encountered verbal predicate to perform main predication. The application of a verbal predicate, say *walk′*, to (5.14) will create existential quantification over the event variable because $\mathbf{V}(e)$ ('the set of eventualities with some verb-like structure') is effectively a superset of *walk′*(e) ('the set of walking eventualities'). This means that the latter logically entails the former, so that (5.15a) entails (5.15b). This shows the existential quantification clearly, with the same predicate inside and outside the epsilon term.

While (5.11b) is therefore a kind of propositional form, neither it nor (5.15a) individually has the potential to be an optimally relevant assertion. (5.15b) asserts only that some eventuality presupposed to include Ferenc as Subject exists, which clearly does not justify the effort of processing the specific predicate *walk′*. On the other hand, (5.15a) asserts that this eventuality is in the set of walking events, but leaves open the possibility that the eventuality in question could be entirely arbitrary and hence effectively contentless. Note, however, that these two assertions are in effect made simultaneously, so that applying the predicate *walk′* as in (5.15a) amounts to a single act that asserts both that a certain eventuality is a walking event and that it exists. Taking these two assertions together clearly invites an extra inferential step that creates a potentially relevant assertion: that a walking event exists. Note that this is in any case precisely the result of substituting the now highly accessible predicate *walk′* for the metavariable $\mathbf{V}$ in (5.15a), as in (5.15c), meaning that this inferential step is of minimal processing cost. Though a matter of relevance-based inference, rather than formal necessity, this step is therefore a practical inevitability. It follows that the act of predication in (5.15a) leads not only to the propositional form in (5.15b), but to the more specific and informative assertion (5.15c).

(5.15) a. $walk'(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')])$
b. $\mathbf{V}(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')])$
c. $walk'(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ walk'(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')])$

Thanks to the presupposed nature of the topic NP and of the idea that there is a temporal anchor (in any case, tense has been processed by the time main

predication is recognised), all the ingredients of a proposition are now in place, so main predication has been achieved. (5.15c) is equivalent to (5.16a) as an assertion of existence, but equivalent to the full proposition (5.16b), as long as the sets of eventualities with a temporal anchor $\mathbf{T}_i$ and of eventualities with Ferenc as Subject are non-empty, as they are implicated to be.

(5.16) a. $\exists e.\ walk'(e)$

b. $\exists e.\ walk'(e)\ \&\ f(e, \mathbf{T}_i)\ \&\ \theta_{\mathrm{NOM}}(e, ferenc')$

Topic-comment sentences in a sense have a dual nature, in terms of what constitutes the subject of main predication. At the level of semantic representation, the main predicate is applied to an eventuality, as is inevitable in a neo-Davidsonian semantics. This is an eventuality that is restricted only by certain kinds of material, however, the only fully specified part of which is an individual participant, as in (5.14)—and the nature of main predication by a verbal predicate is such that the relation of this participant to the eventuality is the only presupposed information in the final proposition. The main predicate in such circumstances can therefore be understood to be predicating a property of a particular individual, even though this is not strictly speaking all that stands in the epsilon term that acts as logical subject. Therefore, a topic-comment reading depends on the role of an intermediate representation like (5.14), which in turn follows from inferences triggered during the incremental processing of the sentence.

The relevance of the epsilon calculus to the concept of main predication lies in the possibility of using a predicate from within a natural language string to create existential quantification over the event variable (and hence potentially create a proposition). Since in a neo-Davidsonian semantics even argument NPs denote predicates, the way is open for constituents other than verbs to act as main predicates. This, I propose, is how the notion of main predication can relate topic-comment and narrow focus readings in Hungarian as two possible outcomes of the same basic syntactico-semantic process. All that is required is for main predication to be consistently signalled syntactically (the subject matter of the following section) in order to unify these two kinds of readings.

As argued in section 5.2.3 above, the recognition that some non-verbal expression is to be taken as the main predicate of a sentence triggers the inference that there must exist a suitable subject of predication, in the form of a focus frame that contains everything necessary to create a proposition in combination with this expression.

This is reflected in the form of the relevant epsilon-based representations. In effect, a non-verbal main predicate prompts a search for a logical subject that is a presupposed description of an eventuality, in the sense that not only the temporal anchor but also a verb-like predicate must be located within the epsilon term that represents the subject of predication. This must also include an 'open slot' for a participant in the role that the main predicate will fill, given the nature of the epsilon calculus—recall that a predicate can create existential quantification over the eventuality only if it or a superset of itself occurs within the epsilon term that defines the eventuality (just as cat' is found inside and outside the epsilon term in the existential statement (5.11b)). Purely inferential processes thus lead from the assertion of a non-verbal main predicate to the conventional idea of a focus frame. These processes are exemplified in section 5.4.1.

This formalisation of the idea of an inferred focus frame fits with the idea that there is an 'existential presupposition' associated with Hungarian PV focus (see, for example, Bende-Farkas 2002). A focus frame, as a logical subject of predication, contains presupposed elements in just the same way as participant topics do in topic-comment sentences. As argued above, this amounts to the inference of the existence of those elements that are necessary to any proposition. This inference is triggered just like any implicature, on the basis of relevance considerations and contextually available assumptions (amongst which is the assumption that an utterance will convey propositional information), but is effectively uncancellable on account of its being indispensable to the creation of a relevant propositional meaning.

The combination of neo-Davidsonian semantics and the epsilon operator therefore gives a clear basis for the processes discussed in section 5.2.3, explaining the contrast between a topic-comment sentence and a sentence containing a narrowly focused constituent, even though both result from a common process of designating a particular expression as main predicate.

A focused constituent may be thought of as a predicate with a certain kind of logical subject eventuality, in the sense that a richly specified eventuality, restricted by a verb-like predicate, is conceptualised as a single referring expression that forms the subject of predication. This is in contrast to the logical subject of a topic-comment sentence, which, though necessarily an eventuality in a dynamic Davidsonian representation, is an eventuality whose only real content up to this point is the topical participant. As a result, this kind of sentence is interpretable as the ascription of a property to an individual, as mentioned above (see also section 5.4.1). The difference between these two perspectives on eventualities need not be stipulated by

syntactic machinery or semantic primitives, as it falls out from the nature of the items found as main predicates in different sentences and from the context in which an utterance is interpreted.

The notion of main predication and the proposed means of representing this in appropriately dynamic semantic formulae puts in place the basis of the interpretive side of the explanation of Hungarian PV phenomena. To complete this explanation, it is necessary to reconsider the syntactic side of the story and to relate this to the expression of main predication. The basic signalling of main predication in Hungarian is addressed in the following section and shown in the next chapter to provide the means of explaining a range of phenomena associated with PV.

5.4 Hungarian syntax and main predication

The principal burden of the current chapter so far has been to show that the interpretive functions of expressions 'in focus' in PV and of tensed verbs in topic-comment sentences can be related through the idea of main predication. It may appear that this fails to provide a fit with the syntactic data. If PV position is defined *relative to* the position of the tensed verb, then the main verb and a PV focus seem to occupy different positions—how could main predication then be considered to relate to some consistent syntactic signal?

A closer look at the syntax of Hungarian, considering a variety of sentences, shows that the usual characterisation of the PV position as a 'pre-verbal' position is in many ways misleading. At any rate, it is clear that main verb position and tensed verb position must be differentiated. It is the latter that PV should be defined in relation to—even if the tensed verb is an auxiliary that effectively expresses nothing but tense, as in the case of the future tense auxiliary *fog*. In sentences containing such auxiliary verbs, the main verb appears in its infinitive form. This makes it possible to see the separate influence of tense and the main verb in grammatical constructions; something that is obscured in sentences that lack an auxiliary, in which the verb stem and tense affix depend on each other. In the presence of an auxiliary like *fog*, it becomes clear that the main verb stem does not necessarily follow PV expressions, but rather 'competes' for the PV position with VMs, narrow foci and the negative particle *nem*, just as these 'compete' with each other to appear immediately before the verb stem when there is no auxiliary.

The crucial data are illustrated in (5.17)–(5.20). The word orders marked with # are impossible with the intended readings, although they may be used to produce other, more marked readings (all of which involve special cases of focus; see section 5.4.1 and Chapters 6 and 7).

(5.17) a. Úszik
swim-3SG.PRES
'S/he swims.'

b. Úszni fog. / #Fog úszni.
swim.INF will.3SG
'S/he will swim.'

(5.18) a. Nem úszik.
not swim-3SG.PRES
'S/he doesn't swim.'

b. Nem fog úszni. / #Nem úszni fog.
not will.3SG swim-INF
'S/he won't swim.'

(5.19) a. MARI úszik.
Mari swim-3SG.PRES
'It's Mari who swims.'

b. MARI fog úszni. / #MARI úszni fog.
Mari will.3SG swim-INF
'It's Mari who will swim.'

(5.20) a. Kimegy.
out(VM)-go.3SG.PRES
'S/he goes out.'

b. Ki fog menni. / #Kimenni fog. / *Menni fog ki.
out(VM) will.3SG go-INF
'S/he will go out.'

In each case, the auxiliariless present tense sentence in the (a) example shows the main verb stem remaining in what is thought of as its canonical position, before tense, irrespective of the presence of *nem*, PV focus or a VM. The (b) examples,

however, show that when the main verb is morphologically independent of the tense affix, it follows the latter in everything but the VM-less topic-comment sentence (5.17b). The presence of any other item in the PV position proves incompatible with the appearance of the main verb before the tense-bearing auxiliary, a fact that strongly suggests that the main verb effectively 'competes' with other items for the PV position itself. Or, more accurately, when the main verb does precede the tensed auxiliary, as in (5.17b), it enters into the same relationship with tense as does *nem*, a focus or a VM when in PV (as in (5.18b), (5.19b) and (5.20b), respectively).

The picture that emerges from these data is that what I have been calling the 'PV (or pre-verbal) position' in fact represents a relationship with tense, rather than with the verb. Given this, it is clear that the main verb itself can in principle be seen, under certain circumstances, as the expression that enters into this relationship with tense—in other words, the verb can be the expression in PV. Simply because of the fact that the expression of tense and the main verb are inseparable in the absence of an auxiliary, the complex [verb+tense] may be taken as equivalent to tense alone when the main verb is finite. Therefore, expressions that enter into the appropriate structural relationship with [verb+tense] can in this case be read as being in PV. On the other hand, the stem of a finite main verb, though always linearly preceding tense, can only be read as holding the relevant relationship to tense when there is no alternative occupant of PV. Note that this is perfectly consistent with the data in (5.17)–(5.20): in the case of infinitives, the main verb visibly precedes tense only in the absence of any other potential occupant of PV. I shall maintain the use of 'PV' as a mere label for the syntactic configuration in question, but it should be borne in mind that this properly refers to a relationship with tense and not to the verb as such[10].

This perspective allows for a maximally simple view of the syntax of PV phenomena. Only one basic syntactic relationship is posited, to correspond to the single interpretive concept of main predication. Complications to the observed word order facts are not actually to be explained by further syntactic mechanisms, but are rather due to the interaction of syntax and quite unrelated morphophonological factors.

This analysis captures a generalisation about all PV items that is often sacrificed in favour of another generalisation, about VMs. The generalisation captured here is

[10]As before, it should also be remembered that 'PV position' refers to a particular structural relationship, signalled partly by phonological means, and not simply to linear precedence. This becomes important when auxiliaries are preceded by no PV item at all; see Chapter 7, section 7.2.

that PV items (including VMs) consistently appear before the tensed verb, whether this is main or auxiliary. Obvious though this is, many syntactic accounts fail to provide a unitary basis for its explanation. Any verb-raising analysis of PV focus (in the style of Bródy 1990) comes up against the serious problems pointed out by Koopman & Szabolcsi (2000) (see Chapter 1, section1.3.2) and/or assumes that VMs are base-generated to the left of all main verbs and is thereby forced into providing a separate explanation for VMs that appear to the left of auxiliaries. Typically, some decidedly idiosyncratic operation of 'VM-climbing' is posited to get VMs generated as prefixes to infinitives to surface before an auxiliary (Farkas & Sadock 1989; Szendrői to appear)[11]. Notice that this also implies that VM-less infinitives must be thought of as a kind of VM (Koopman & Szabolcsi 2000, 20; É. Kiss 2002, 207), since such infinitives must 'climb' also, as in (5.17b); an otherwise unmotivated assumption that is difficult to square with the behaviour of the infinitive in examples like (5.20b).

The assumption of base-generation of VMs to the left of main verbs appears to be based on two observations. The first is the perceived 'neutral' nature of the topic-comment reading associated with VM>V order when the main verb is finite, yet if this were really related to the putatively base-generated VM>V complex, it would be baffling that VM and V are found separated from one another on the corresponding 'neutral' reading of a sentence containing an auxiliary like *fog* (as in (5.20b)). The second reason is the point made by Koopman & Szabolcsi: the fact that a pre-auxiliary narrow focus will cause any VM to surface not in just any post-verbal position, but necessarily to the immediate left of the main verb infinitive. Clearly, this requires an explanation in terms of some other factor, given my analysis of PV effects; Chapter 6, section 6.3 shows how the basis of such an explanation follows from the the idea of main predication. In any case, there is no logical necessity to connect the tendency for VMs to precede tense to their tendency to precede the main verb and it seems preferable to recognise this rather than employ more than one mode of explanation for the simple generalisation that PV items always precede the tensed verb.

My analysis of the relationship between the structure and interpretation of PV phenomena in Hungarian therefore boils down to the following. If tense is morphologically independent of the main verb, then the expression that immediately

[11] All 'VM-climbing' proposals have to appeal to some extra-syntactic factor (morphological in the case of Farkas & Sadock 1989; prosodic in the case of É. Kiss 2002, Szendrői to appear) to motivate the phenomenon, often relying on the inaccurate notion that auxiliaries cannot take primary stress (see Chapter 7, section 7.2).

precedes tense is interpreted as the main predicate. If tense and the main verb stem depend on each other morphologically, then the expression that immediately precedes the complex [verb+tense] is interpreted as the main predicate. As things stand, this is in the form of a stipulation—that is, I take main predication to be directly encoded in the structure of Hungarian in this way (in Dynamic Syntax terms, the procedural semantic notion of main predication could be directly associated with a certain kind of transition between lexical items in the course of parsing). Note, however, that this is a single stipulation of a highly underspecified process, on the basis of which a wide range of interpretive phenomena can be shown to follow. In this respect, this analysis is minimally stipulative, especially in comparison to the kind of syntactic account that posits a string of abstract distinguished syntactic projections to account for the range of PV phenomena.

Furthermore, there are reasons to believe that this particular means of signalling main predication is far from purely arbitrary. After all, tense is the expression of the temporal index on an eventuality and as such is assumed to be an essential part of any proposition. The idea that the signalling of main predication—the conversion of a description of an eventuality into the assertion of a proposition—should be connected to the signalling of another essential part of the proposition is a natural one. Put another way, it makes sense that the identification of an eventuality relative to other eventualities (as achieved by temporal indexing) should be connected to the identification of that eventuality in another sense: locating it in a particular set of eventualities, and thereby effecting existential quantification over it (as achieved by the main predicate). Keeping these two key aspects of a proposition together structurally constitutes a highly efficient way of completing and asserting a proposition and/or triggering the necessary inferential processes to do so. I leave these remarks here, in order to concentrate (in the following chapter) on the explanatory power of treating PV (i.e. immediately pre-tense position) as a signal of main predication, rather than dwelling on the status of this form-meaning correspondence. For the present, I simply note that this fact in itself may prove to be explicable at some more fundamental level, rather than being an entirely arbitrary property of Hungarian syntax.

5.4.1 Simple worked examples

In this section, I work through two simple example sentences to show how main predication, as represented using neo-Davidsonian formulae and the epsilon operator, accounts for both topic-comment sentences and those containing narrow focus.

This brings together the ideas discussed in this chapter, in particular illustrating the dynamic nature of the overall explanation, and prepares for more complex examples in the following chapter.

Topic-comment

In order to show clearly the relationship between the main verb, (other) PV items and tense, I use sentences containing the future auxiliary *fog*. (5.21) is an example of a topic-comment sentence.

(5.21) Ferenc látni fogja Marit
Ferenc see-INF will Mari-ACC
'Ferenc will see Mari.'

Recall from section 5.3.2 that the parsing of the first word, *Ferenc*, provides the information in (5.22). That is, as the initiation of an utterance that is expected to convey propositional information, the utterance of this expression not only contributes the semantic content of the expression itself—a certain kind of function from an entity into an eventuality—but also posits an eventuality involving a verbal meaning and occurring at some temporal index.

(5.22) $\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')]$

As at every stage in the parse, inferential processes may be triggered at this point. At the very least, inference will be involved in assigning the referent *ferenc′* to the proper noun. Though this may seem trivial, the addressee's cognitive environment may of course include a number of men called Ferenc and it is a relevance-based inferential task to identify the one intended in a given context (that is, one may think of the individual *ferenc′* as chosen over the other possibilities *ferenc2′*, *ferenc3′* ...).

The fact that this expression is sentence-initial and not the main predicate means that it must be assumed to play a key role in setting up the immediate context for an act of main predication. As the literal 'starting point' for the incoming utterance, it signals a link between existing states of knowledge and the anticipated new assertion. This is not due to the existence of some [+topic] primitive, but is a relevant inference over the act of explicitly referring to something in advance of the recognisably asserted part of the utterance. As in Sperber & Wilson's (1986) account of word order and information structure in English (see Chapter 3, section 3.1.2), such acts of referring to x may be viewed as setting

up the question 'What about x?' (or 'Why have you mentioned x?'). In order for such a question to be coherent and relevant, x must relate to a manifest referent from the context. This has consequences for the readings that syntactic topics receive; in particular, such inferences account for the presupposed nature of topics and their necessarily specific, 'individuated' reading (É. Kiss 1987; É. Kiss 1998b). Other inferences that might already be triggered could relate to the reasons that the communicator may be inferred to have for talking about the man in question. Such inferences could affect the parsing process itself, in cases of ambiguous word order; see section 5.4.1.

Making the assumption that the verb *látni* should be analysed as having two obligatory arguments (*modulo* the comments on arguments and adjuncts in section 5.2.3, above) the following will serve as a simple representation of its semantic content in the lexicon (that is, with metavariables in its obligatory argument slots)[12]:

(5.23) $\quad see'(e)\ \&\ \theta_{\mathrm{NOM}}(e, \mathbf{U})\ \&\ \theta_{\mathrm{ACC}}(e, \mathbf{W})$

When the predicate *see'* is introduced in the context of the information in (5.22), the internal argument can be immediately identified with the topical nominative expression *Ferenc* that has already been processed and as such is clearly the most relevant substituend for the metavariable **U**. As the parse proceeds, the infinitival verb is recognised to immediately precede the tense-carrying auxiliary *fog* and therefore to be signalled as main predicate. As a result, the predicate *see'* is applied to the whole eventuality selected by the epsilon operator. Because of the argument structure (5.23), it is effectively a logical necessity that any eventuality to which this predicate applies contains an argument with the θ_{NOM} role and another with the θ_{ACC} role. The metavariable placeholders for these arguments are therefore inserted into the description of the eventuality, within the scope of the epsilon operator.

As a result, the propositional form in (5.24a) is created. Thanks to the metavariable **V** thereby also finding a substituend (see the discussion of (5.15), above), this is equivalent to (5.24b), which clearly shows the creation of existential quantification.

[12]This might alternatively be represented in a hierarchical fashion (as in Dynamic Syntax, for example), since $\theta_{\mathrm{NOM}}(e, \mathbf{U})$ and $\theta_{\mathrm{ACC}}(e, \mathbf{W})$ represent the external and internal arguments of the verb, respectively. Such structure is undoubtedly required in the analysis of other aspects of the grammar, for example in accounting for the 'Definiteness Effect' (see Chapter 4, section 4.3) and in the analysis of VMs, as discussed in Chapter 6, but, for reasons mentioned above, the level of representation relevant for basic word order facts in Hungarian seems to be rather the 'decomposed' kind that contains parallel, conjoined predicates over eventualities. I leave as an open question how different kinds and levels of representation might be related to each other.

(5.24) a. $see'(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')\ \&\ \theta_{\mathrm{ACC}}(e, \mathbf{W})])$

b. $see'(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ see'(e)\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')\ \&\ \theta_{\mathrm{ACC}}(e, \mathbf{W})])$

In other words, a (selected) eventuality of Ferenc doing something (at a separately specified time) to the entity to be substituted for **W** exists because it is found within the set of seeing eventualities. This contains all the necessary ingredients of a propositional representation, including the assertion of existence, showing that main predication has taken place.

The sentence is completed by the assertion of the object *Marit*. Recall that this is what É. Kiss (1998a) calls an 'information focus', which I take to be part of a broad focus—that is, newly asserted information, but not a main predicate. Prosodically, this is separated from the main predicate by the fact that it bears its own pitch accent. The same pitch accent reflects its status as a logical predicate—a predicate that is to be applied to whatever is perceived to be the contextually most relevant logical subject. In the context of being uttered as part of the same sentence that has already created (5.24), the most relevant potential logical subject is the eventuality represented by the epsilon term in (5.24b). This results in the predication shown in (5.25a). In effect, this involves utilising the output of the process of 'thematising the rheme' proposed by Egli & von Heusinger (1995); that is, the recently applied verbal predicate *see'* is now found inside the epsilon term only. Within a dynamic, incremental parsing based approach this is nothing more than a representation of the fact that material already parsed adds to the context for the interpretation of incoming material. Since *mari'* is now clearly the obvious substituend for the object metavariable **W**, the full effect of processing the object *Marit* is to create the formula in (5.25b).

(5.25) a. $\theta_{\mathrm{ACC}}((\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ see'(e)\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')\ \&\ \theta_{\mathrm{ACC}}(e, \mathbf{W})]),\mathit{mari}')$

b. $\theta_{\mathrm{ACC}}((\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ see'(e)\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')\ \&\ \theta_{\mathrm{ACC}}(e,\mathit{mari}')]),\mathit{mari}')$

(5.25b) is another existential statement, in terms of the epsilon calculus ($\theta_{\mathrm{ACC}}(e,\mathit{mari}')$ being found within the epsilon term as well as predicated of it). This appropriately reflects the fact that the objecthood of Mari in relation to the selected eventuality is newly asserted information (and hence part of the focus). Nevertheless, this is not an act of main predication, since it does not create a proposition for the first time. Rather, the assertion in (5.25b) acts as an elaboration of an existing proposition (although, due to the 'thematisation of the rheme' process between (5.24b)

and (5.25b), the propositional status of the epsilon term is not visible in the formula (5.25b)). In some ways, the propositional content of (5.21) should therefore be thought of as the conjunction of (5.24b) and (5.25b). While this may seem formally inelegant in terms of the conventional assumption that each sentence can be algorithmically translated into 'its semantic translation', the proposed conjunction of representations reflects not only the necessarily incremental nature of linguistic processing, but also to some extent the structure of a Hungarian topic-comment sentence, with its apposition of separately stressed participant phrases following the verb[13].

Narrow focus

(5.26) is an example of a sentence that contains both a syntactic topic and a narrow focus.

(5.26) Marinak FERENC fogja adni a könyvet.
Mari-DAT Ferenc will give-INF the book-ACC
'It's Ferenc who will give the book to Mari.'

The syntactic topic can be dealt with much as in (5.22), above (assuming a new simplified 'thematic role' function, θ_{DAT}, relating to the dative case marking om *Marinak*). Thus, the state of the semantic representation at the point of processing the first word in (5.26) is roughly as in (5.27).

(5.27) $\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{DAT}}(e,\mathit{mari}')]$

This is where the similarity with the interpretation of (5.21) ends, as far as the syntactic topic is concerned. This cannot be the subject of main predication, since the expression signalled by pre-tense position to be the main predicate is not a verb and therefore not the kind of function that can ascribe a property to an individual. Rather, as noted in sections 5.2.3 and 5.3.2, the designation of $\theta_{\mathrm{NOM}}(e,\mathit{ferenc}')$ as main predicate triggers a search though the context for a suitably specified eventuality—in other words, a focus frame—that can act as subject of predication.

[13]Nevertheless, it might make sense to incorporate into the semantic representation some way of tracking the propositional status of formulae like (5.24b) as they are manipulated and used in further interpretive processes. I leave this as an idea for future work, since my current concern is simply to illustrate the emergence of information-structural effects in the course of incremental parsing and inference. Including such tracking mechanisms might create the impression of the use information-structural semantic primitives, which is of course something that I expressly avoid here.

Clearly, being already established as part of the eventuality under discussion, the information conveyed by the syntactic topic must be a part of the focus frame. This therefore restricts the search space for this broader subject of main predication. This represents one particular kind of example of the RT notion of how context is constructed in the course of interpretation.

The recovery of the relevant focus frame can be viewed in two ways. If contextual factors ensure that the idea of 'giving Mari the book' is manifestly the only relevant candidate to fulfil this role, it may be slotted into the semantic representation in one go, the destressed post-tense material *adni a könyvet* simply providing confirmation of this decision (this is intuitively quite likely with this particular example, given the material already contributed by the syntactic topic). This amounts to the recovery from context of the eventuality description in (5.28a). As already noted in section 5.3.2, it is a necessary inference from the stipulation of $\theta_{\mathrm{NOM}}(e,\mathit{ferenc}')$ as main predicate that the subject of main predication must include this very function or a superset of it. This requirement is fulfilled by the function $\theta_{\mathrm{NOM}}(e,\mathbf{U})$, the metavariable **U** allowing for existential quantification by the main predicate just as the metavariable **V** does in (5.24a). As also mentioned in section 5.3.2, the logical necessity of this inferential step can be seen to account for the so-called 'existential presupposition' associated with PV focus.

When the main predicate is applied to (5.24a), the propositional form in (5.28b) is produced. Therefore, if the focus frame is identified immediately from the context, (5.28b) is in effect created as soon as the tense-carrying auxiliary is processed and the main predicate thereby established.

(5.28) a. $\varepsilon, e\ [f(e,\mathbf{T}_i)\ \&\ \mathit{give}'(e)\ \&\ \theta_{\mathrm{DAT}}(e,\mathit{mari}')\ \&\ \theta_{\mathrm{ACC}}(e,\mathit{the\text{-}book}')\ \&\ \theta_{\mathrm{NOM}}(e,\mathbf{U})]$

b. $\theta_{\mathrm{NOM}}((\varepsilon, e\ [f(e,\mathbf{T}_i)\ \&\ \mathit{give}'(e)\ \&\ \theta_{\mathrm{DAT}}(e,\mathit{mari}')\ \&\ \theta_{\mathrm{ACC}}(e,\mathit{the\text{-}book}')\ \&\ \theta_{\mathrm{NOM}}(e,\mathit{ferenc}')]),\ \mathit{ferenc}')$

(5.28a) may be read as 'the selected eventuality such that "it" will give the book to Mari' while (5.28b) asserts that this same eventuality exists in the set of eventualities with Ferenc as Subject. In other words, the eventuality in (5.28a) is asserted to exist insofar as it is asserted to have Ferenc as its Subject. This corresponds exactly to the narrow focus meaning associated with PV foci: 'Ferenc is the one (="it") who will give the book to Mari.'

Alternatively, (5.28b) might be arrived at by a slightly different route: the destressed post-tense material might play a slightly more significant role, if the context alone does not immediately pick out this particular focus frame—in this case meaning that it is not clear which particular eventuality involving Ferenc in the nominative and Mari in the dative is under discussion. In this case, an intermediate, but still propositional, representation might be created by the application of the main predicate, as in (5.29)

(5.29) $\theta_{\mathrm{NOM}}((\varepsilon, e\,[f(e, \mathbf{T}_i)\,\&\,\mathbf{V}(e)\,\&\,\theta_{\mathrm{DAT}}(e,\mathit{mari}')\,\&\,\theta_{\mathrm{NOM}}(e,\mathit{ferenc}')]),\ \mathit{ferenc}')$

Assuming the post-tense word order in (5.26) (this is just one possibility), the destressed main verb infinitive *adni* is encountered next. The predicate *give*′ can be simply substituted for the metavariable **V** in this case. This is not an act of assertion as in (5.25)—the destressed expression merely helps the addressee to distinguish between different presupposed eventualities and thus the process involved is still essentially concerned with selecting whole focus frames. That is, the verb is not introduced as a piece of information whose relation to the eventuality in question is assumed to have been previously unknown to the addressee; instead it helps to identify, or confirm, the right eventuality, out of possible contextual candidates. On such occasions, the metavariable is more of a true 'pro-form' than a mere placeholder and the destressed verb in effect ensures that the relevant context is constructed to force the substitution of the appropriate semantic material.

The further specification of the context that is provided by the verb is likely to make manifest the whole focus frame and thus create the completed proposition in (5.28b) directly. It is conceivable that it is still not clear which particular thing to be given to Mari is under discussion, however. Assuming *adni* to require three obligatory arguments, at least at a semantic level (other analyses are possible, as in Marten 1999), the processing of the verb would then produce the representation in (5.30), with a metavariable occupying the place of the direct object. As presupposed material within a now-identified focus frame, this is once again simply substituted by the appropriate material (*the-book*′) when the destressed post-tense noun phrase *a könyvet* is encountered, creating (5.28b).

(5.30) $\theta_{\mathrm{NOM}}((\varepsilon, e\,[f(e, \mathbf{T}_i)\,\&\,\mathit{give}'(e)\,\&\,\theta_{\mathrm{DAT}}(e,\mathit{mari}')\,\&\,\theta_{\mathrm{ACC}}(e, \mathbf{U})\,\&$
$\theta_{\mathrm{NOM}}(e,\mathit{ferenc}')]),\ \mathit{ferenc}')$

So far, the discussion has assumed that a main verb found in the immediately pretense position (as in (5.21)) will be interpreted as the beginning of the 'comment' part of a topic-comment sentence, as in section 5.4.1. It should be noted, however, that another possibility exists: the verb itself may be read as a narrow focus when it signalled in this way as being the main predicate. That is, a verb may, like a non-verbal main predicate, be interpreted with respect to a focus frame, given the right contextual conditions. This would involve post-verbal material such as the object *Marit* in (5.21) being fully destressed and would result in a reading with contrastive focus on the verbal predicate itself (as in 'Ferenc will *see* Mari; he won't *hear* her.').

This means that there are in effect two possible parses of a string like (5.21), corresponding to its two prosodic realisations (i.e. with or without post-verbal stress). These both involve the recognition that the main verb is the main predicate, but differ in that one of them involves the verb providing a predication over the preverbal (or contextually provided) topical entity (as in section 5.4.1), while the other involves main predication acting as a trigger for the recovery of a whole topical eventuality, or focus frame.

Were this difference identifiable only through the different prosodic patterns, this word order ambiguity might appear to entail the potential for quite inefficient parsing. Not until after the main predicate has been applied does the prosodic difference become apparent, when post-verbal expressions are encountered and seen to be stressed or destressed. This implies that considerable back-tracking would be necessary. For example, if a topic-comment parse is assumed at the point of applying the verb as main predicate, then predication over the topical entity would have to be 'undone' when destressed post-verbal expressions are encountered and predication over an eventuality enacted in its place.

However, prosodic structure is not the only thing that differentiates such readings: by definition, such readings require different contexts and contextual factors are able to influence the parsing process in the kind of dynamic approach that I am assuming (for experimental evidence that context guides parsing, see Crain & Steedman 1985; Altmann & Steedman 1988). Contexts that are compatible with a contrastive or corrective (narrow focus) reading of the verb—that is, contexts containing an eventuality that is manifestly a candidate to act as focus frame for the verb as narrow focus—are unlikely to make a topic-comment reading relevant,

and *vice versa*. Moreover, even if extra effort were involved in parsing contrastive uses of verbal main predicates, this would most likely be off-set by the relatively rich contextual effects associated with contrastivity.

My dynamic approach to the creation of focus readings thus predicts that the word order of so-called 'neutral' sentences like (5.21) is compatible with another reading involving narrow focus on the verb (given the possible variations of context in which such a sentence may be produced) and does so without any string-vacuous syntactic operations. The wider theoretical significance of such 'ambiguities' with certain linear orderings becomes clear once VMs are considered. The apparent ambiguity of sentences containing pre-tense VMs (parallel to the 'ambiguity' of sentences like (5.21)) has been claimed to be an argument against maintaining a unified position for all PV phenomena, including unmarked VM position. The notion of main predication in a dynamic approach to grammar and interpretation proves to neutralise this argument. This is addressed in the following chapter.

Chapter 6

VMs and Main Predication

6.1 Overview

The notion of main predication developed in Chapter 5, along with the general left-to-right dynamic perspective within which it is defined, opens up a simple explanation of the most complex aspect of the Hungarian PV data: the distribution of VMs.

As outlined in Chapter 1, the notion of VM encompasses a considerable variety of phenomena, whose only immediately obvious common feature is their syntactic behaviour, in particular their unmarked pre-verbal position that is abandoned for the post-verbal domain in the presence of other PV phenomena such as a narrow focus. A few examples are given in (6.1)–(6.4), recalling those of Chapter 1, section 1.2.3).

(6.1) 'prefix' VM:

a. Kati megette az almát.
Kati VM-ate the appleACC
'Kati ate the apple (up).'

b. Kati ette meg az almát.
Kati ate VM the appleACC
'It's Kati who ate the apple (up).'

(6.2) accusative bare nominal:

a. Pisti levelet írt.
Pisti letter-ACC wrote
'Pisti wrote a letter.'

b. Pisti írt levelet.
Pisti wrote letter-ACC
'It's Pisti who wrote a letter.'

(6.3) resultative expression:

a. Ferenc pirosra festette a kerítést.
Ferenc red-to painted the fence-ACC
'Ferenc painted the fence red.'

b. Ferenc a kerítést festette pirosra.
Ferenc the fence-ACC painted red-to
'It's the fence that Ferenc painted red.'

(6.4) locative:

a. Péter a szobában maradt.
Péter the room-in stayed
'Péter stayed in the room.'

b. Péter maradt a szobában.
Péter stayed the room-in
'It's Péter who stayed in the room.'

Conventional, static linguistic frameworks can easily deal with this diversity, on a technical level: the variety of interpretive effects associated with VM-hood can be related to a multiplicity of abstract pre-verbal syntactic positions, each of which may be supposed to relate at LF to a different interpretive effect. I have argued that this sort of approach is of questionable explanatory power, however. On the other hand, if a dynamic account such as my own is to be judged any less *ad hoc*, it should be the case that it is able to appeal to some underlying commonality across the class of VMs, to explain the syntactic similarity of its members.

The main predication analysis of Chapter 5 accounts straightforwardly for the post-posing of VMs in the presence of syntactically focused constituents, as illustrated in the (b) examples above. The hypothesis that PV, an immediately pre-tense position, signals the main predicate leads inevitably to the impossibility of a VM intervening between a focus and a tensed verb, since a focused expression is one kind of main predicate. This rests on the reasonable assumption that the syntactic independence of VMs indicates that they make independent contributions

to the semantic representation, of a kind that is manifested in a neo-Davidsonian representation as a predicate of the eventuality variable.

The opposite side of VM behaviour is then brought into question, however: what makes the different kinds of VM appear in PV—by hypothesis, as main predicates—in the absence of a focus (or negation), and how are they interpretable as unmarked main predicates—the first element in a broad focus, or 'comment'—rather than being read as narrow foci themselves? After all, the discussion of main predication in Chapter 5 suggests that the verb is unique in acting as unmarked main predicate in this way. In this chapter, it is shown that VMs share with VM-less verbs the property of introducing certain key elements of structure into the eventuality and that this is the basis of the ability to be an unmarked main predicate. Furthermore, such structure must be introduced at the point of main predication, or, by the logic of main predication as an act of existential quantification, it cannot be introduced at all, other than by presupposition. The behaviour of VMs both in the presence of narrow foci and in 'neutral' sentences is thus shown to follow without further stipulation from the dynamics of the main predication analysis.

6.2 Verbal 'prefix' particles and resultatives

The basis of my analysis of VM behaviour is the fact that VMs create complex predicate structures, on a semantic level, in combination with the lexical verb. As shown in Chapter 1, section 1.2.3, this is supported by a number of pieces of structural evidence, as well as being a logical necessity in the case of certain semantically non-compositional VM+V combinations. The process of complex predicate formation is somewhat mysterious with some VM+V combinations, but is characterisable in every case as a form of modification of the structure of the eventuality, in comparison to what would be produced by the lexical verb alone. This section introduces and illustrates this idea—and the way in which it explains the syntactic behaviour of VMs—using resultative VMs and the closely related telicising prefixes, since these provide the clearest and most easily representable kind of semantic restructuring. This is because in this case the contribution of the VM can be viewed as adding material over and above the contribution of the verb, whereas in the case of many of the other VMs, the relevant modification takes place within the structure of the verbal predicate itself.

Furthermore, the verbal prefix (henceforth VPr) creates some of the most obvious cases of complex predication, frequently featuring non-compositional elements of

meaning (see Chapter 1, section 1.2.3) as well as the involvement of semantically highly underspecified items, like the VPr *meg*, which is generally simply described as a 'perfectivising' or 'telicising' prefix, and might most nearly be glossed as 'to completion'.

It is sometimes claimed that VPrs fundamentally play an aspectual role—indeed, their unmarked, pre-verbal position is characterised by some analysts as an 'Asp(ect)P' projection (e.g. É. Kiss 2002; see section 7.2.1). It is certainly the case that many VPrs are involved in the creation of certain aspectual readings, though these may vary with the position of the VPr (see section 7.2). Most commonly, this means the production of telic readings when the VPr appears in PV, as illustrated in (6.5): the VM-less verb in (6.5a) is compatible with a durative adverbial, whereas the addition of the VPr in (6.5b) creates a sentence whose adverbial phrase shows it to be telic.

(6.5) a. Mari öt percig sielt a lejtőn.
Mari five minute-for skied the slope-on
'Mari skied on the slope for five minutes.'

b. Mari öt perc alatt lesielt a lejtőn.
Mari five minute under down(VM)-skied the slope-on
'Mari skied down the slope in five minutes.'

However, as É. Kiss (to appear) points out, the relationship between the presence or absence of a VM in PV and any normal aspectual category is almost certainly too complex and indirect to support a theory whereby aspect is the primary factor in VM position. Thus, in addition to telicising VPrs, there are atelic predicates that involve VPrs or VPr-like particles. These are locative statives and located activities, as exemplified in (6.6a,b), respectively.

(6.6) a. János bent maradt a liftben.
János within(VM) remained the lift-in
'János remained in the lift.'

b. A gyerekek lent játszanak az udvaron.
the children down(VM) play the courtyard-in
'The children are playing down in the courtyard.'

Meanwhile, there are verbs that are telic in the absence of any VM. One class of such verbs is made up of the 'definiteness effect' verbs, which are bounded by

the particular result state of a new entity being introduced into the discourse at a particular location (see Bende-Farkas 2002), as in (6.7).

(6.7) János hozott egy széket.
János brought a chair-ACC
'János brought a chair.'

As É. Kiss (to appear) points out, a particular problem for any approach to VMs that relies on movement based on matching aspectual features is the case of accusative bare nominals, since their aspectual character can be affected by the particular context in which they appear, including not only the verb with which they combine, but also other elements of the sentence. Thus, while these nominals typically create atelic meanings in PV, as in the most usual reading of (6.8a), some sentences involving them can result in a bounded reading, as in (6.8b).

(6.8) a. Éva pulóvert bontott.
Éva pullover-ACC broke.up
'Éva was unravelling a pullover.'

b. János asztalt bontott.
János table-ACC broke.up
'János rose first from the table.'

Note that this determination of aspectual meaning by the combinations that different expressions are found in is perfectly consistent with an interpretation-based dynamic account, but potentially highly problematic for a conventional generative account of the relationship between syntax and semantics. Different word orders do in some cases demonstrably correspond to different aspectual readings (see section 7.2), which means that aspectual features should be encoded into the syntax under a conventional account, in order that everything occupies the right position at LF to produce the right interpretation at the interface with semantics. Yet this is precisely what the data presented here do not allow for—at least not without such massive complication of the lexicon that the syntactic side of the story practically ceases to express any real generalisations.

Rather than aspectual effects as such being significant, it therefore seems that there is something more basic underpinning the class of VPrs (and, potentially, other VMs). In fact, as has proved to be the case at various points in this thesis, the truly significant interpretive generalisation is as much procedural as it is a

matter of declarative truth-conditional semantics. The feature common to all VPrs is that they enter into complex predicates with the main verb. This very often has aspectual consequences, but the analysis of aspect as such is not the grammatically significant level of generalisation.

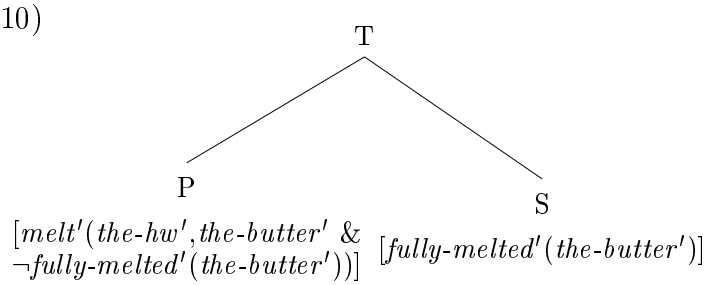
For example, *meg* in (6.9) ensures that the verb *olvaszt* 'melt' is interpreted as a telic action—specifically, an accomplishment, in terms of Vendler's (1967) classifications. In practice, what this means is that the Theme argument of *olvaszt* is taken to 'measure' the temporal extent of the melting event (Tenny 1994). This is more obvious in the case of an accomplishment with a count noun Theme, such as *eat an apple*, in which the total consumption of the apple in question is a condition for the eating event to be considered to have been completed. The truth-conditions of (6.9) depend similarly on a change of the state involving the Theme: the quantity of butter referred to must be all be in a fully melted state for the event described to be judged to have taken place.

(6.9) A háziasszony megolvasztotta a vajat.
the housewife VM-melted the butter-ACC
'The housewife melted the butter (completely) / The housewife has melted the butter.'

Given that a change of state appears to be necessarily involved in the characterisation of such propositions, the structure of the accomplishment eventuality that is created by *meg* can be represented in terms of sub-eventuality structure. This can be represented in the manner of Pustejovsky (1991), as in (6.10), showing in a hierarchical representation how the main eventuality expressed by a proposition can be composed of sub-eventualities. Under this kind of approach, an accomplishment is conceived of as a transition (T) from a process (P) to a 'result state' (S)[1]. The transition cannot be judged true unless both the process and the result state are true (and related to each other in the appropriate logical and temporal ways).

[1]Pustejovsky (1991) conceives of processes themselves as sequences of sub-events, but I follow Rothstein's (b) Davidsonian representations (see below) in treating the process part of a complex eventuality as a single sub-event. At some level, this must be considered a simplification, but it suffices to identify the relevant qualities of VPrs and, importantly, reflects the ways in which complex eventualities are lexicalised. Numerous details of the internal conceptual structure of the verbal contribution are simplified here, relative to Pustejovsky's representations, for presentational purposes.

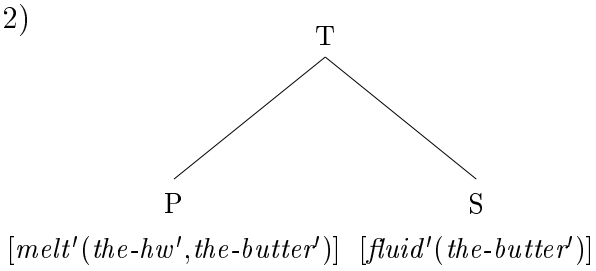
(6.10)



One way to analyse the 'telicising' function of a VPr like *meg* is therefore to view its contribution as the introduction of a sub-eventuality—an act of predication over the Theme of the main verbal predicate—that represents the result state of a complex eventuality. This analysis is supported by the close parallelism between a sentence like (6.9) and a more transparently 'resultative' construction, as in (6.11). A Pustejovsky-style representation of the interpretation of (6.11) would look like (6.12). Thus, a syntactically and semantically parallel accomplishment sentence is created by simply swapping the VPr for a lexical specification of the result state (É. Kiss to appear).

(6.11) A háziasszony folyékonnyá olvasztotta a vajat.
the housewife fluid-to melted the butter-ACC
'The housewife melted the butter to (a) fluid (state).'

(6.12)



In order to demonstrate how this aspect of VPr meaning is significant to the issue of main predication, it is necessary to represent sub-eventuality structure in a 'flat' neo-Davidsonian formula. Such formulae already exist in the literature on secondary predication. For example, Rothstein (b:159) proposes (6.13b) (adapted slightly for consistency of presentational conventions) as the semantic translation of the English sentence (6.13a), which contains a resultative secondary predicate.

(6.13) a. Mary painted the house red.
b. $\exists e.\exists e_1.\exists e_2.\ e = e_1 \sqcup e_2$ & $paint'(e_1)$ & $Agent(e_1,mary')$ & $Theme(e_1,the\text{-}house')$ & $red'(e_2)$ & $Arg_1(e_2,the\text{-}house')$ & $cul(e_1) \sqsubseteq e_2$

Note that Rothstein's formula relates the two sub-eventualities, e_1 and e_2, in two ways. The predicate *cul* is a variant of Parsons' (1990) culmination function, meaning (6.13b) includes the specification that the culmination of the process sub-eventuality (Mary's painting the house) is part of the result state sub-eventuality (the house being red). The 'sum operator' $\sqcup$ separately ensures that the eventuality e consists of these two sub-eventualities (I shall henceforth refer to the eventuality bound by the outermost existential quantifier or epsilon as the 'main eventuality'). The contribution of the resultative expression is analysed as an act of secondary predication. Like any predicate, this requires a logical subject, which is identified by the function Arg_1 (a simple presentational strategy that evades orthogonal questions of the applicability of theta-roles).

The three existential quantifiers in (6.13b) would require a highly complex formula in my epsilon-based means of representation and would cause some difficulty in identifying the true main predicate in (6.13a) (or its Hungarian equivalent). Happily, it is not only unnecessary but undesirable to include all of these acts of existential quantification, in order to be consistent with the approach I have promoted so far. Under my approach, the sub-eventualities e_1 and e_2 should not be asserted to exist, any more than should argument slots subcategorised for by the assertion of a verb. All such elements are entailed by the assertion of some more general aspect of the meaning of the sentence. If it is asserted that an eventuality exists that has the property of being a kissing event, for example, it follows deductively that there must an Agent and Theme of this eventuality. In effect, the existence of these participants is a presupposition (albeit a particularly strict one), since it need not be asserted, but is rather a precondition to the production of any coherent interpretation of a sentence containing the verb *kiss*. Hence placeholders for these participants may be simply inserted into the logical subject of main predication, alongside other presupposed material, within the scope of the epsilon operator (recall the discussion of (5.23) in Chapter 5, section 5.4.1). Similarly, it only need be asserted that a given eventuality involves a result state in order for it to be a necessary deduction that the eventuality in question is a complex one containing also a process. Hence the existence of the latter need not be asserted.

This gives a first clue as to why Hungarian VMs unmarkedly appear in PV, the position that signals main predication. It is because of the necessary presupposition of their arguments that VM-less verbs are unmarkedly main predicates, as shown in Chapter 5. If VMs introduce structural elements in a similar way, such as the

structure of a complex eventuality required by a resultative, then VMs can be unmarked main predicates for the same reason.

Consider what it means for the main predicate of a sentence to assert that the main eventuality, e, has a result state e_2. This boils down to the assertion that e exists, and exists because it is found within the set of complex eventualities that have the sub-eventuality e_2 as their result state. If this is true, it must be the case that there exists a process e_1 that produces the result state, while the assertion in itself presupposes the existence of e_2. In other words, the assertion that e_2 is the result state of e creates the skeletal structure of a proposition containing a complex eventuality in much the same way as the assertion of a verbal predicate encountered in advance of its arguments creates a skeletal proposition containing a simple eventuality. Therefore, the assertion of a resultative VM, just like the assertion of a VM-less verb, effects main predication while leaving the way open for the further assertions that give detailed content to the skeletal structure and thus together produce the effect of a broad focus. As a result, there is no implication that the main predicate is a narrow focus for which a focus frame must exist as logical subject.

The formulaic representation of this can be illustrated clearly using a lexical resultative example like (6.11). In order to clarify the true syntactic relationship between the verb, tense and main predication, I shall once again concentrate on the future time equivalent of this, (6.16a), so that the tensed verb is an auxiliary, and the main verb is morphologically independent. To render the act of main predication as plainly as possible, I propose a number of adaptations to the kind of representation exemplified in (6.13b), such that the Pustejovsky-style conception of complex eventuality structure is directly reflected. Instead of Rothstein's representation of an accomplishment as the 'sum' of two eventualities, I introduce predicates over eventualities that represent the properties of being a transitional eventuality (TRANS), of being the process sub-eventuality (P-SUB) and of being the result state sub-eventuality (R-SUB). I assume these predicates to be defined such that the dependencies between them are inherent to their semantics; in other words, P-SUB and RES are related to TRANS in a way comparable to the relationships between theta-role functions and verbal predicates. In this way sub-eventualities are related to each other only indirectly, via the overarching transition eventuality, as in Pustejovsky's hierarchical representation, yet the different component acts of predication may still be manipulated independently, since they are simply conjoined within a neo-Davidsonian formula.

As with all logical representations of linguistic meaning, there is something arbitrary in positing functions that are defined and inter-related at this particular level of semantic detail. However, the fact that they prove to yield a generalisation that provides the basis for explaining the unmarked nature of main predicate VMs is evidence that representations of this kind have some degree of psychological reality. The sub-eventuality functions P-SUB and R-SUB also have close correlates in the elements of the linguistic string. The former corresponds to a main verb that can be assumed to have some lexical specification of its potential aspectual qualities. A resultative VM is typically an adjective or bare nominal (and therefore predicative) but also case-marked in such a way that its being the 'goal' of a process is suggested (as in *folyékonnyá* 'fluid-to' in (6.16a), or *pirosra* 'red-to', which would appear in the translation of (6.13a)). Only the higher-level function TRANS has no overt linguistic correlate, but it seems reasonable to assume that a complex eventuality can be conceptualised as such and assigned this kind of property on the basis of its sub-eventualities.

Ignoring main predication for the moment, the basic structure of the representation of an accomplishment is therefore essentially as in (6.14).

(6.14) $\exists e.\ \textsc{trans}(e)\ \&\ \textsc{p-sub}(e, e_1)\ \&\ \textsc{r-sub}(e, e_2)$

A number of details must be added to this basic template. In order to clarify the status of the sub-eventualities, these should be bound by the epsilon operator (in line with my comments above regarding the application of existential quantification only to e) and shown with their inferrable structure and content. Just as in Rothstein's formula, a result state predicate must have its own logical subject, which is related to the relevant sub-eventuality by the function Arg_1. It is also necessary for every sub-eventuality to have some content in the form of a 'kind of eventuality' predicate metavariable **V**. It is therefore one of the consequences of recognising the complex eventuality structure introduced by a resultative VM that the **V** metavariable that is presupposed with every utterance becomes 'distributed' among sub-eventualities rather than predicating directly over the 'top level' eventuality e. This is not a purely technical move: it corresponds to the enrichment of the original presupposed $\mathbf{V}(e)$ into a more highly structured kind of eventuality and is therefore an expected part of building a representation of an accomplishment complex predicate.

Putting these observations together, (6.14) can be expanded to (6.15).

(6.15) $\exists e.\ \textsc{trans}(e)\ \&\ \textsc{p-sub}(e, (\varepsilon, e_1\ [\mathbf{V}_1(e_1)]))\ \&$
$\textsc{r-sub}(e, (\varepsilon, e_2\ [\mathbf{V}_2(e_2)\ \&\ \mathit{Arg}_1(e_2, \mathbf{U})]))$

In the case of (6.16a), the $\mathbf{V}_1$ metavariable will in due course be substituted by the predicate *melt′* and $\mathbf{V}_2$ by *fluid′*. The final representation of (6.16a) will therefore correspond to (6.16b).

(6.16) a. A háziasszony folyékonnyá fogja olvasztani a vajat.
the housewife fluid-to will melt-INF the butter-ACC
'The housewife will melt the butter to (a) fluid (state).'

b. $\exists e.\ \textsc{trans}(e)\ \&\ f(e, \mathbf{T}_i)\ \&$
$\textsc{p-sub}(e, (\varepsilon, e_1\ [\mathit{melt}'(e_1)\ \&\ \theta_{\mathrm{NOM}}(e_1, \mathit{the\text{-}hw}')\ \&\ \theta_{\mathrm{ACC}}(e_1, \mathit{the\text{-}butter}')]))$
$\&\ \textsc{r-sub}(e, (\varepsilon, e_2\ [\mathit{fluid}'(e_2)\ \&\ \mathit{Arg}_1(e_2, \mathit{the\text{-}butter}')]))$

It can now be shown how this representation is built up in the course of parsing (6.16a). As usual, the topical NP *A háziasszony* introduces not only its own denotation—a theta-role function connecting the entity *the-hw′* to an eventuality—but also, by inference, the expectation that this eventuality will have some content in the form of a **V**-type predicate and some temporal anchor point. This now-familiar stage of interpretation is shown in (6.17a). Next the resultative VM *folyékonnyá* 'to fluid' is encountered and recognised by its pre-tense position as being the main predicate. The basic semantic contribution of this expression is (6.17b) (as can be deduced from (6.15)). When this is applied, as main predicate, to the epsilon term in (6.17a), this has a number of further effects, because the assertion of a result state entails that the eventuality as a whole has a certain structure, as discussed above. The assertion of the predicate R-SUB leads to the deduction that the eventuality in question is of a complex kind: a transition, and thus the structure in (6.15) is introduced (minus the existential quantifier) as an enrichment of the presupposition of a simple $\mathbf{V}(e)$ kind of eventuality. The application of (6.17b) to (6.17a) as main predicate therefore results in (6.17c).

As usual, any metavariable within the 'top level' epsilon term that corresponds to some part of the main predicate can be substituted with the appropriate content from the main predicate, so that (6.17c) amounts to (6.17d). This shows the existential quantification over e that is caused by the use of the resultative as main predicate.

(6.17) a. $\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ \mathbf{V}(e)\ \&\ \theta_{\mathrm{NOM}}(e,$*the-hw′*$)]$

b. $\lambda e.$ R-SUB$(e, (\varepsilon, e_2\ [$*fluid′*$(e_2)\ \&\ Arg_1(e_2, \mathbf{U})]))$

c. R-SUB$((\varepsilon, e\ [$TRANS$(e)\ \&\ f(e, \mathbf{T}_i)\ \&$
P-SUB$(e, (\varepsilon, e_1\ [\mathbf{V}_1(e_1)\ \&\ \theta_{\mathrm{NOM}}(e_1,$*the-hw′*$)]))\ \&\ \theta_{\mathrm{ACC}}(e_1, \mathbf{U})]))\ \&$
R-SUB$(e, (\varepsilon, e_2\ [\mathbf{V}_2(e_2)\ \&\ Arg_1(e_2, \mathbf{U})]))]),$
$(\varepsilon, e_2\ [$*fluid′*$(e_2)\ \&\ Arg_1(e_2, \mathbf{U})]))$

d. R-SUB$(\varepsilon, e\ [$TRANS$(e)\ \&\ f(e, \mathbf{T}_i)\ \&$
P-SUB$(e, (\varepsilon, e_1\ [\mathbf{V}_1(e_1)\ \&\ \theta_{\mathrm{NOM}}(e_1,$*the-hw′*$)]))\ \&\ \theta_{\mathrm{ACC}}(e_1, \mathbf{U})]))\ \&$
R-SUB$(e, (\varepsilon, e_2\ [$*fluid′*$(e_2)\ \&\ Arg_1(e_2, \mathbf{U})]))]),$
$(\varepsilon, e_2\ [$*fluid′*$(e_2)\ \&\ Arg_1(e_2, \mathbf{U})]))$

(6.17d) may be read as: 'the eventuality e, selected with respect to the property of being a transition with a temporal anchor $f(e, \mathbf{T}_i)$ from the eventuality e_1 of the housewife doing something to the resulting state e_2 of some entity having a state of being fluid, exists because it is found within the set of eventualities that involve the result state e_2 of some entity having a state of being fluid'.

While this is a fully propositional assertion, the remaining metavariables in (6.17d) can still be given content by subsequently asserted 'information focus' material, just as such material may follow a main verb when the latter serves as main predicate in a sentence that contains no VM (see Chapter 5, section 5.4.1). It is thus the structure-building quality that these VM-less verbs and VMs have in common that makes them able to function as main predicates without triggering a narrow focus reading.

While the lexical resultative in (6.16a) makes for a particularly clear illustration of the main predicating qualities of a secondary predicate VM, the parallelism between (6.10) and (6.12) shows that many VPrs can be analysed in an entirely parallel fashion; the only difference between sentences like (6.9) and (6.11) being the degree of semantic specification associated with the result state sub-eventuality.

Not all VPrs are parallel to resultatives, but it will be shown below that essentially the same kind of proposition-structuring qualities that make resultative VMs unmarked main predicates are associated with all VPrs and other VMs.

It should be noted here that there is another way for a VM as main predicate to be interpreted: as a narrow focus. This way of reading a main predicate is always possible, given a suitable context, though it can only happen when the VM

in question has enough conceptual semantic content to allow for contrasts to be drawn with contextual alternatives. The so-called 'dual behaviour' of VPrs in this respect, which has been argued to necessitate multiple abstract pre-verbal positions and which requires string-vacuous movements within most syntactic analyses (see Chapter 1, section 1.3.1) therefore follows without further stipulation from the main predication analysis, as does the fact (noted by É. Kiss 1994, 44) that only VPrs with 'literal' directional semantics can take on a focus reading.

6.3 Why the VM, not the verb, is the unmarked main predicate

The ability of VMs to be unmarked main predicates is only half the story regarding the syntax of sentences containing VMs. It is also noticeable that the verb itself can only function as an unmarked main predicate—that is, as the first part of a broad 'comment', rather than being a narrow focus—when there is no VM in the sentence. Whenever there is a VM, this is the only possible main predicate that can produce a topic-comment reading, as shown in (6.18).

(6.18) a. A sínész beszaladt.
the actor in(VM)-ran

b. #A sínész szaladt be.
the actor ran in(VM)
Intended: 'The actor ran in.'

c. A sínész be fog szaladni.
the actor in(VM) will run-INF

d. #A sínész szaladni fog be.
the actor run-INF will in(VM)
Intended: 'The actor will run in.'

In fact, it seems that it is difficult for the verb from within a VM+V complex to be the main predicate at all. Most Hungarian speakers reject sentences in which this kind of verb is placed in PV for the sake of focusing the contribution of the lexical verb—even when the VM+V combination has quite transparent semantics, as in (6.19).

(6.19) a. #A sínész szaladt be, nem lovagolt.
the actor ran in(VM) not rode
Intended: 'The actor RAN in; he didn't RIDE in.'

b. #A sínész szaladni fog be, nem lovagolni.
the actor run-INF will in(VM) not ride-INF
Intended: 'The actor will RUN in; he won't RIDE in.'

If the verb from within a VM+V combination is to be set in narrow focus, for the sake of contrast, an alternative strategy must be used, in which the VM+V combination is presented as a unit and the verb within it focused by purely phonological means (this is comparable to the phonological contrast of non-PV quantifiers discussed in Chapter 4, section 4.6). This is illustrated in (6.20).

(6.20) a. A sínész beSZALADT, nem beLOVAGOLT.
the actor in(VM)-ran not in(VM)-rode
'The actor RAN in; he didn't RIDE in.'

b. A sínész beSZALADNI fog, nem beLOVAGOLNI.
the actor in(VM)-run will not in(VM)-ride
'The actor will RUN in; he won't RIDE in.'

All of this is predicted by the dynamic main predication account developed above. On first sight, this might not appear to be the case, considering representations like (6.17d). The process sub-eventuality function P-SUB is structurally parallel to the result state sub-eventuality function R-SUB and the latter is able to be a main predicate. So one might expect that the lexical item that relates to the process sub-eventuality—the verb—should be also able to be the main predicate, other things being equal.

Other things are not equal, however: there is an important difference of another kind between P-SUB and R-SUB. Unlike a resultative VM, the verb also has the ability to introduce a predicate over a main eventuality. That is, the contribution of the verb is quite different with regard to the internal structure of the epsilon term when it is part of a VM+V complex, compared to its contribution in a sentence with no VM. In a sense, there are two semantic translations of the verb, though in this case they do not relate to different lexical entries; rather, one is the lexical verb's own semantic contribution, while the other is that semantic contribution embedded in structure that is introduced by the main predicate. This is why a

dynamic approach is crucial to explaining the data in (6.18), (6.19): achieving the correct interpretation is dependent on ascribing the right semantic status to the verb, but this in turn is dependent on whether the VM is processed before the verb is encountered.

The difference between the two possible contributions of the verb always exists, irrespective of the aspectual properties of the bare verb, since functions like P-SUB are additions to the structure of the verbal predicate, not simply aspectual predicates. Main predication is effected by lexicalised predicates (recall the account of proportional quantifiers in Chapter 4, in which the availability of some lexicalised predicate within a complex quantifier proved sufficient to allow it to appear in PV) and P-SUB is only associated with the lexical main verb when this is recognised to be used in combination with a VM that introduces a certain complex eventuality structure. The verb *olvaszt*, for example, happens to be a process, but this does not mean that it is associated with the function P-SUB in the absence of a VM—its aspectual properties are defined within its own internal semantic structure, below the level at which such a function can apply. Such a verb does not require the addition of special eventuality-structuring predicates like P-SUB in order to apply to the main eventuality variable and create main predication. Similarly, the analysis of resultative VMs should not be taken to imply that all lexical verbs are processes and that accomplishments can only be made by the addition of a VM. Some lexical verbs are accomplishments, as noted above in respect of the 'definiteness effect' verbs, but this is again a matter of their internal structure. Where aspectual structure is internal to the lexical verb, the entire contribution of the verb is conceptualised as a single predicate and none of this structure need be represented within the description of the main eventuality. As a result, when a lexical verb is the main predicate, this always asserts the existence of a simple eventuality, rather than introducing the structure of a complex one.

For example, *melt'* as main predicate would simply produce the propositional form in (6.21).

(6.21) $melt'(\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ melt'(e)\ \&\ \theta_{\mathrm{NOM}}(e,$*the-hw'*$)\ \&\ \theta_{\mathrm{ACC}}(e, \mathbf{U})])$

Therefore, if the verb *olvaszt* is encountered on its own in PV, then an eventuality with the form of (6.21) is asserted to exist.

Once an eventuality with a certain structure is asserted to exist, it is too late to assert a different structure. This would be necessary to allow the assertion of a VM

at this point: (6.21) is a very different structure to (6.17d)—and there are of course much less compositional VM+V combinations, for which the difference would be even greater. It follows that the only unmarked reading that can be produced by a verbal main predicate is one with a simple internal structure; that is, one in which the verb is not understood as combining with a VM. This fits with the only observed cases of an apparent VM item appearing as an 'information focus' (i.e. post-verbally and stress-bearing): these items turn out not to have a true VM meaning in this context (see section 7.2).

One might ask why it is too late to re-structure an assertion after the point of main predication. After all, my approach allows quite free inferential enrichment processes during parsing, so why should the post-verbal appearance of a VM not be able to restructure a 'comment', changing a representation like (6.21) into one like (6.17d) by inference? The answer resides in fundamental principles of grammatical processing.

Any attempt to process a VM as part of a 'comment'—in other words, as an 'information focus'—would have to involve the re-structuring of the eventuality as a step within a single parse of the sentence, simply taking an existing partial representation as input and producing the restructured representation. This would amount to destroying information from the representation created by main predication and replacing it with different information. Put in these terms, it becomes clear that the monotonicity of the system of representation is at issue. It is generally held that the monotonicity of any system of building semantic representations should be considered axiomatic (even though in the current approach the inferential processes that *inform* this system may be non-monotonic). This is practically a necessity, since permitting non-monotonic procedures would allow in the possibility of massive computational inefficiency throughout the system. If the monotonicity of the system is assumed, any restructuring of the eventuality after main predication, as part of a single parse, is ruled out in principle[2].

This explains the data in (6.18)—the fact that a 'neutral' (topic-comment) reading cannot be produced by using the verbal part of a VM+V combination as the main predicate. It might still be expected that narrow focus on the verbal contribution

[2]It might be objected that an act of restructuring takes place *at* the point of main predication, in the worked example (6.17), as the simple metavariable V is 'redistributed' among the subeventualities that are introduced. V is merely a a semantically empty placeholder, however; an indication that some verbal content is expected to be predicated over the eventuality e. This expectation is fulfilled by the structure that is introduced upon main predication. There is no destruction of information involved in such a restructuring; in fact it is enrichment.

should be possible through the use of PV, on the grounds that this would involve the presupposition of the VM+V combination and therefore make the correct form of the verb (i.e. embedded in the P-SUB function) accessible from the context. In this respect, it is notable that there are speakers who find sentences like those in (6.19) acceptable for the purposes of contrastive focus (as Szendrői to appear also observes)—and one informant who has these intuitions reports that a particularly clear sense of the VM being presupposed is required for this word order to be used, just as the main predication analysis would predict[3]. Even these speakers tend to prefer the phonology-only strategy in most cases, however.

The impossible/dispreferred nature of the PV strategy for focusing such verbs does in fact fit with the dynamic nature of the main predication account. Though it is true that a narrow focus reading involves the presupposition of the semantic structure of the rest of the sentence, it must be borne in mind that the verb has a special status in terms of main predication: it does not normally prompt a narrow focus reading, because of its own structure-introducing properties. It is therefore likely to be the case that the intention to focus the verb cannot be reliably recognised until explicit contrastive material (such as the negative second clause in (6.19a,b)) has been encountered. This means that the simple version of the verb is likely to be applied as main predicate (e.g. (6.21) rather than (6.17d)) before the contrastive focus structure is recognised. This would require the abandonment of the parse initiated with the simple version of the verb and re-parsing using the complex predicate form of the verb and a presupposed focus frame. This process does not involve violation of monotonicity within a single parse, so is not ruled out in principle, as a non-focus reading of the verb as main predicate would be, but it is clearly a highly inefficient way to achieve the reading required. A purely prosodic strategy, as in (6.20) allows the VM to precede the verb and thus to assert its structure and ensure that the correct contribution of the verb is understood to be contrasted. Though itself a marked strategy in Hungarian, this purely prosodic focus is less costly than asserting the existence of a proposition, only to abort the parse and assert a different proposition. The fact that the use of PV to express narrow focus on the verb from within a VM+V complex is either considered impossible or allowed only in contexts in which the presupposed focus frame is particularly accessible (by those

[3]Some of these cases may in fact involve the 'progressive aspect' construction, which does not involve true VM+V combinations (see section 7.2): for example, the same informant comments that the difference between (6.20a) and (6.19a) seems to correspond roughly to the difference between the English formulations *The actor RAN in; he didn't RIDE in* and *The actor entered RUNNING; not RIDING*. Other sentences that are judged acceptable in the pattern of (6.19) are not so easily explained in this fashion, however.

speakers who allow it at all) is therefore entirely consistent with the dynamic main predication analysis of PV.

Note that the claim here is that the verb from within a VM-V complex predicate cannot generally be the main predicate; it is not claimed that the verb cannot precede the VM under any circumstances. This does occur; one construction involving V>VM order is discussed in section 7.2. However, there is in fact only one grammatical context in which the verb precedes a VM expression and still results in a clear complex verbal predicate reading (with the exception of those marginal instances of verb-in-focus accepted by some speakers). This is the kind of sentence that triggers all discussions about Hungarian 'focus position': with a finite main verb preceded by some other expression in focus, causing postposing of the VM (as in example (6.1b) from the beginning of this chapter). As established in Chapter 5, this amounts to a situation in which the focused expression introduces the main predicate and in which all other material (including all verbal material) is part of a presupposed focus frame. This means that the structure and the content of the main eventuality are not constructed in the course of processing the sentence in question, but are recovered from context as a whole. There is therefore generally no danger in this case of constructing from the verb alone an inappropriate representation that must be subsequently destroyed in the light of processing the VM. Given the possibility of 'accommodation' of the presupposed material, this does remain a marginal possibility, however—although even in such cases, the broader context is likely to severely constrain the kinds of predicates that are likely to be accessed on the basis of the verb alone. In any case, the order V>VM is restricted to the situation in which it is unavoidable for independent morphological reasons (the mutual dependence of the main verb and tense morphology in the absence of an auxiliary verb). Furthermore, the VM is preferred as close to the verb as possible in this situation (É. Kiss 2002, 85). This supports the claim that the explanation of unmarked pre-tense appearance of VPrs and other VMs depends upon a dynamic approach.

One further detail should be noted, which is broadly consistent with the main predication analysis, despite initial appearances to the contrary. While, as predicted, the verb alone out of a VM+V complex cannot generally appear as the main predicate, even to express contrastive focus, it is in fact possible to treat the whole of the VM+V complex predicate meaning as a narrow focus by placing it in PV, as in (6.22). Note that the word order used in the 'stress-only' strategy for verb focusing (as in (6.20b)) implies this also.

(6.22) A háziasszony megfagyasztani fogja a vajat (nem kidobni).
The housewife VM-freeze-INF will the butter-ACC not out(VM)-throw-INF
'The housewife will FREEZE the butter, not THROW IT OUT.'

This is somewhat unexpected, since all other aspects of the PV focus phenomenon have strongly indicated that the main predicate analysis is right in requiring only a single predicate to appear in PV and, within this, the syntactic behaviour of VMs suggests that they should be treated as separate lexicalised predicates from the verbs which they modify (albeit different kinds of predicate), such that the VM alone occupies the PV position unmarkedly. The explanation of examples like (6.22) must therefore be that VM+V complexes can under certain circumstances be conceptualised as a single lexicalisation of a complex predicate meaning and may consequently appear in PV as a single predicate for the purposes of singling out this composite meaning—that is, to create a narrow focus reading of the VM+V complex.

This assumption is not so *ad hoc* as it may seem, nor does it introduce unconstrained and empirically unattested new possibilities of complex predicate formation for the purposes of focusing. This is because it is in any case necessary to assume that VM+V complexes have a complicated relationship to the lexicon. The frequently non-compositional semantics of such complexes demands that they must relate to individual lexical entries (Ackerman & LeSourd 1997), even as their syntactically independent component parts must have their own separate lexical entries (at least in a dynamic analysis). It is therefore not so surprising that VM+V complexes can be conceptualised as single predicates for the purposes of narrow focus readings like that in (6.22). Notably, this reading is available only under certain structural conditions: the VM must precede the verb, preventing the initial selection of the simple semantic form of the verb as main predicate, and the complex must bear only a single pitch accent, falling on the VM and thus indicating a compound-like structure[4].

[4]One might ask whether the VM>V structure in the case of a 'neutral' sentence with a finite verb, as in (6.9), does not also involve the contribution of the whole VM+V complex in PV, rather than the VM, as argued above. The two analyses of the contribution of the VM—as an individual predicative element or as a part of a complex lexeme—are structurally indistinguishable here because of the inseparability of the verb stem and the tense morpheme. It would not in fact affect the present analysis greatly if the VM+V complex were taken to be a single predicate in such cases, though it seems preferable to maintain a parallel analysis for all VMs, not all of which can be analysed as having partially lexicalised relationships with particular verbs. Notice one thing that this *doesn't* mean: the whole [VM-V-TENSE] complex could still not be treated as equivalent to tense alone, in the manner of the [V-TENSE] complex with finite main verbs. If it could, VMs should be able optionally to fail to invert in the presence of a focus. However, the treatment

6.3.1 VMs as unmarked main predicates: empirical support

The idea that a VM in PV is, on its own, the main predicate of the sentence, and that it is able to be so unmarkedly because of its role in determining the structure of a complex eventuality, is supported by a further piece of empirical evidence, which shows a clear parallel between certain VMs and VM-less verbs. This is the ability of these expressions to express an entire proposition, given a suitably rich context.

As noted in Chapter 1, Hungarian is a 'pro-drop' language with regard to both subjects and objects, meaning that a single tensed verb, say *Csókolta*, can be a whole sentence, expressing a whole proposition—in this case, 'He/she kissed him/her/it'. This is consistent with the notion that the main verb here performs main predication, since main predication is precisely a matter of one predicate creating a propositional assertion. According to my arguments in Chapter 5, the main verb is an unmarked main predicate because it can introduce the structure of the whole proposition, with metavariables as placeholders in as yet unmentioned elements of the proposition. Given this, if the context is sufficiently rich, these metavariables may all function anaphorically, being substituted by contextually salient entities, in which case only the main predicate need be phonetically realised at all.

It is therefore notable that some VMs can stand alone as grammatical assertions in a certain context, which contains rich, salient presupposed material, yet does not produce a narrow focus reading of the VM. This is the case of answering a 'yes-no' question with a VPr alone, as in the use of (6.23b) in reply to (6.23a) (É. Kiss 2002, 59).

(6.23) a. Hazamegy?
home-go.2SG
'Are you going home?'

b. Haza.
home
'Yes (I am going home).'

of [V-TENSE] as equivalent to tense exists because of independent *morphological* constraints and has nothing to do with semantic constituency. There is no such constraint on the attachment of VM to verb—and because the VM *can* be a syntactically and semantically independent predicate, it must be assumed to be intended to be in PV whenever it occupies the immediately pre-tense position (and shows the relevant prosodic marking).

Note that it is not simply the relatively specific meaning of the VPr *haza* and the compositional semantics of the VM+V combination in (6.23a) that allow this: for example, *Megtaláltad?* 'Have you found it?' can be given the positive answer *Meg* (Bende-Farkas 2002:139).

The context of the 'yes-no' question introduces complexities of information-structural interpretation that are beyond the scope of this thesis and I do not offer a full account of the interpretation of (6.23b) and similar sentences here. Nevertheless, the ability of some VMs to stand alone in this fashion is mysterious in the absence of a generalisation that brings VM-less main verbs together with just the VM part of VM-V complexes. The notion of main predication provides such a generalisation; one that sheds some light on the phenomenon exemplified in (6.23). The idea that VMs are unmarked main predicates because they can introduce the skeletal structure of a complex eventuality, with metavariables as placeholders, is entirely consistent with the fact that the utterance of a VM alone can be sufficient to assert a whole proposition, provided that the context is such that it provides substitutes for every metavariable in the skeletal propositional structure[5]. Only this kind of basis to the parallel between VMs and VM-less main verbs can account for the fact that it is the VPr rather than the verb that is the minimal utterance in such a context.

6.4 Other VMs

The analysis of resultative VMs, including telicising VPrs, shows how the syntactic properties of VMs can be derived from the idea of main predication in PV, within a dynamic, incremental processing approach to the creation of propositional forms. For such an account to be explanatory it clearly must be applicable to other members of the diverse class of VMs; that is, the other items that share precisely the syntactic properties in question. A detailed analysis of every sub-class of VM would require a lengthy study in itself and would take the present work into areas that lie well beyond its scope, but there are at least preliminary reasons to believe that each kind of VM can be treated in a manner that is parallel in significant ways to that proposed above for resultatives and telicising VPrs. These reasons are presented in this section.

[5]Note that the point here is to emphasise the parallelism between VMs and verbs, given that Hungarian is a 'pro-drop' language. The analysis here is not intended to explain the pro-drop phenomenon itself.

It is worth noting that the very diversity of the expressions that qualify as VMs is an indication that the ultimate explanation of their behaviour must lie in something like the present account. Since this class does not conform to any conventional syntactic or semantic category, it is unlikely that conventional syntactic or semantic approaches could ever uncover the basis of what makes its members behave alike in certain ways. On the other hand, a perspective that transcends such categories, looking rather at the broader character of the contributions that different expressions can make at different points in the construction of a propositional form, has the potential to draw together otherwise unexpected groupings of linguistic items.

6.4.1 Bare nominals

Singular bare nominals (henceforth BNs) show the syntactic behaviour of VMs, although they produce quite different aspectual effects to resultatives and perfectivising VPrs. Thus, BNs appear unmarkedly before the tensed verb, but are postposed in the presence of negation or a narrowly focused expression, as in (6.24) (see also Chapter 1, section 1.2.3).

(6.24) a. Ferenc fát vágott.
Ferenc wood-ACC cut
'Ferenc was cutting wood.'

b. Ferenc vágott fát.
Ferenc cut wood-ACC
'It's Ferenc who was cutting wood.'

c. Ferenc nem vágott fát.
Ferenc not cut wood-ACC
'Ferenc wasn't cutting wood.'

The aspectual interpretation produced is typically atelic. This in line with Tenny's (1994) notion that internal arguments 'measure out' the eventuality, since BNs do not introduce a discourse referent, but rather seem to denote a property. This is shown by the difficulty with which BNs support anaphoric reference. As É. Kiss (1994:52) shows, though the anaphoric reference within a sentence like (6.25a) is marginally acceptable (the 'definite conjugation' of the verb *elvesztette* acts like an object pronoun), this must be analysed as the result of 'bridging inference': the

existence of book(s) that Mari bought is implied by the fact that she went book-buying, even though no particular book is actually referred to[6]. In other contexts, such reference is not possible, as shown in (6.25b)[7]. This is a strong indication that a BN, at least in this kind of construction, does not introduce a discourse referent in the way that a full NP would.

(6.25) a. ??Mari könyvet$_i$ vásárolt, majd elvesztette$_i$.
Mari book-ACC bought then lost(DEF)
'Mari book$_i$-shopped, then she lost it$_i$.'

b. *János iskolába$_i$ ment, majd felrobbantotta$_i$.
János school-to went then blew.up(DEF)
Intended: 'János went to school$_i$, then he blew it$_i$ up.'

It would appear that the combination of determiner and nominal is necessary to introduce a discourse referent, a situation that implies that the possibility mentioned by Kempson *et al.* (2000:240) that the determiner may introduce individual referents applies at least in Hungarian[8]. The important point in the current context is that this leaves BNs denoting a property rather than an individual. This has led to suggestions (e.g. McNally 1999) that the PV appearance of BNs is an instance of syntactic and semantic incorporation, in the sense of Van Geenhoven (1998), who develops an idea originally due to Carlson (1977) that existential quantification over BNs is supplied by the verb into which they incorporate. This means that many verbs must be assumed to have two semantic translations. For example, the English verb *see* would have a non-incorporating version, whose arguments are individuals (as in (6.26a)), and an incorporating version, whose internal argument is a property (as in (6.26b)), which appears in phrases such as *see spots*.

(6.26) a. $\lambda y.\lambda x.see'(x, y)$
b. $\lambda P.\lambda x.\exists y\ [P(y)\ \&see'(x, y)]$

[6]The improvement of an otherwise unacceptable sentence through bridging reference is fully in line with a view of the syntax-semantics interface that allows for inferential pragmatic enrichment in the course of interpretation

[7]This section is primarily concerned with accusative nominals, whereas (6.25b) involves a 'goal' locative, which functions like a resultative. Nevertheless, it is presumably the determinerless nature of the nominal in (6.25b) that makes anaphoric reference impossible, so I take É. Kiss's reasoning to be relevant here.

[8]As Bende-Farkas (2002:70) points out, plural bare nominals do license pronominal anaphora, suggesting the possibility that plural morphology can alternatively introduce a (plural) discourse referent. This may be quite consistent with the general idea that determiners introduce discourse referents: Bende-Farkas also points out that the Hungarian plural suffix on nominals is in complementary distribution with all determiners other than the definite article, *a(z)* (2002:75).

Cohen & Erteschik-Shir (2002) argue that such lexical ambiguity can be replaced by a generalised type-shifting operation for verbs, of the kind introduced for NPs by Partee (1987). Cohen & Erteschik-Shir propose that this operation is triggered by the type mismatch between verbs and property-denoting BN arguments, but offer little discussion of the precise grammatical circumstances under which such ways of 'rescuing' type mismatches should be permitted. In any case, the 'incorporation' of BNs in Hungarian is clearly linked to particular syntactic configurations (and is to a degree lexically restricted; see É. Kiss 1998b), so something other than a simple type mismatch must be involved in the interpretation of Hungarian BNs. In this context, it is notable that the notion of main predication in PV provides just the kind of syntactically manifested interpretive procedure that is missing from Cohen & Erteschik-Shir's account: one that could act as the trigger for something akin to their type-shifting operation.

Bende-Farkas (2002:70ff.) points out that the interpretation of Hungarian BNs differs from that of Van Geenhoven's 'semantically incorporated' nominals, since the latter support anaphoric reference, via the existential quantifier in representations like (6.26b) (Van Geenhoven (1998) deals primarily with incorporation in languages like West Greenlandic, in which this is appropriate)[9]. Rather than using the kind of representation in (6.26b), Bende-Farkas assumes that it is in the nature of all verbs that combine with VMs that they require to be associated with some extra property and she represents them as in (6.27) (within a DRT analysis). While this kind of verbal contribution must interact with other VMs in more complex ways, a property-denoting BN simply substitutes directly for the property-type placeholder P.

(6.27) $\lambda P.\lambda x.\ P\text{–}VERB(x)$

Bende-Farkas is concerned primarily with the representation of interpretations, however, and does not attempt to explain the grammatical origins of these interpretations, beyond the general idea that the appearance of VMs in their pre-verbal position is associated with the formation of complex verbal predicates. This is in no way a fault with Bende-Farkas's particular approach, but rather a virtually inevitable situation with any analysis which assumes that static syntactic representations provide the input to interpretive processes. The notion of main predication

[9] Cohen & Erteschik-Shir (2002:153ff.) wish to prevent English BNs also from being interpreted as relating to particular discourse referents, despite the form of (6.26b). Their solution to this involves appealing to the relative ordering of the type-shifting operation and Erteschik-Shir's (1997) discrete level of 'focus structure'. I have argued against the latter, in Chapter 3, section 3.1.2.

within a dynamic approach to both structure and interpretation, on the other hand, provides the potential to explain *how* a variety of effects follow from certain structural facts.

I adopt in the following a schematic form of representation like that in (6.27) which suffices to demonstrate why BNs typically must appear in PV, in advance of the verb. As this kind of representation implies, I assume that a BN in PV forms a complex verbal predicate with the verb that it precedes and that it simultaneously saturates an argument position associated with that verb. I leave aside the question of precisely how these operations are effected, as this involves a raft of complex issues that are not immediately relevant to the present argument, at levels of analysis that are not straightforwardly representable with the formal techniques I employ here (for example, the details of argument structure and aspectual interpretation).

When a BN, for example *fát* 'wood', is encountered in PV, it is signalled that a property-denoting non-verbal predicate (*wood′*) is involved in predicating directly over the main eventuality. This involvement must be sufficient to effect main predication, yet this kind of predicate is not of a type that can predicate directly over eventuality variables—it is rather expected to restrict a nominal variable. The only way in which it can predicate over an eventuality variable and thereby create main predication is via complex predicate formation with a verb. The complex predicate required for main predication can be given a simplified representation as in (6.28). The subscript CP, for 'complex predicate', serves to distinguish the kind of verbal contribution required here from the **V** that is presupposed in every eventuality prior to main predication.

(6.28) $wood'\text{–}\mathbf{V}_{\mathrm{CP}}$

As ever, for this to effect existential quantification over the eventuality variable, some equivalent predicate must be inferred to exist within the epsilon term that is to serve as the subject of main predication. There are two ways in which this can happen. One is the familiar case of the production of a narrow focus reading via the recovery of a focus frame: a whole presupposed eventuality that lacks specification only of the predicate in question—for example, the context makes manifest it is manifest a presupposition that 'Ferenc was cutting something [such that this kind of cutting is a recognised complex verbal predicate]' (say, by inference from a salient assumption that 'Ferenc was cutting grass'). In terms of the simplified representations employed here, this can be shown as (6.29).

(6.29) $\varepsilon, e\ [P\text{–}cut'_{\mathrm{CP}}\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')]$

Since this is presupposed, cut'_{CP} can be inferred to be the contextually favoured substitute for the V_{CP} metavariable part of (6.28). Providing this substitution is made, predicating (6.28) of (6.29) will create main predication, since $P\text{–}cut'_{\mathrm{CP}}$ is a superset of $wood'\text{–}cut'_{\mathrm{CP}}$. This yields the representation in (6.30), with the reading in (6.31).

(6.30) $wood'\text{–}cut'_{\mathrm{CP}}(\varepsilon, e\ [P\text{–}cut'_{\mathrm{CP}}\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')])$

(6.31) Ferenc fát vágott.
Ferenc wood-ACC cut
'It's wood that Ferenc was cutting.'

However, the accessibility of this kind of focus frame is restricted to rather rare contexts. The second, more common, way in which processing (6.28) could effect main predication is via the inference that the initially presupposed $\mathbf{V}(e)$ predicate must be restructured to produce a metavariable of the form $\mathbf{P}\text{–}\mathbf{V}_{\mathrm{CP}}(e)$. Recall that this merely stands for a more complicated representation of the complex predicate: the effects of this restructuring include the saturation of the lexical verb's internal argument slot and the imposition of certain relations between sub-eventualities and temporal structure. Since a property takes the place of the internal argument, there can be no 'measuring out' of a telic eventuality, so, in effect, an unbounded series of eventualities is asserted to exist. Thus, this restructuring represents the introduction of particular elements of complex predicate structure, as a result of applying the contribution of the BN alone.

In fact, given the form of the main predicate (6.28), the $\mathbf{P}$ within this inferred $\mathbf{P}\text{–}\mathbf{V}_{\mathrm{CP}}(e)$ structure will instantaneously be substituted by $wood'$, so that main predication by (6.28) produces the representation in (6.32) (assuming, for the sake of completeness, that *Ferenc* has already been encountered as a topic).

(6.32) $wood'\text{–}\mathbf{V}_{\mathrm{CP}}(\varepsilon, e\ [wood'\text{–}\mathbf{V}_{\mathrm{CP}}(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')])$

Since $wood'\text{–}\mathbf{V}_{\mathrm{CP}}$ is a development of $\mathbf{V}$, this fulfils all the conditions for the status of full proposition, so main predication is achieved in advance of encountering the lexical verb.

The structure of the eventuality having been determined in this way, the contribution of the verb, when it is processed, must fit into this structure—that is, it must be of the kind represented by cut'_{CP}, rather than cut'. The consequent non-introduction of an internal argument slot and the realignment of the aspectual elements of the verb's meaning can be seen as parallel operations to Cohen & Erteschik-Shir's (2002) verbal type-shifting operation. Like the type mismatch that they take to trigger type-shifting, the proposed restructuring operation results from the fact that one lexical element is interpreted in the context provided by the interpretation of another, but in this case the precise kind of context involved is given more definition and motivation through the overall dynamic approach and the particular operation of main predication.

If the verb, rather than the BN, is the main predicate, this restructuring cannot take place. This is because an eventuality with the usual internal structure of the lexical verb is thereby asserted to exist. In this case, the usual internal argument slot associated with the verb will be projected and the BN will only be able to appear if it can somehow be coherently interpreted as a full argument, rather than a mere property. This interpretation can only arise in a context that supports certain inferences. This analysis thus explains the 'perfective' aspectual interpretation of V>BN ordering in the absence of a PV focus and known lexical and contextual restrictions on this (Kiefer 1994), without further stipulation. These latter points are discussed further in section 7.2.

At one level, my account entirely parallels the 'semantic incorporation'-based approach, in that in a sense two forms of the verb are posited, with two internal semantic structures, only one of which enables it to combine with the BN. The dynamic main predication account simply reverses the direction of explanation, deriving the particular semantic form of the verb from the linguistic context at that point in the parse. As a result, the relationship between BN interpretation and the syntactic phenomenon of PV is explained, rather than stipulated.

In fact, the dynamic analysis shows that, in effect, both orderings of BN and verb in Hungarian involve some equivalent or other of Cohen & Erteschik-Shir's type-shifting. This is because of the necessity to seek an individuated reading of the BN if it is encountered after the main verb. Whether it is the verb or the nominal that 'shifts' in some way depends on which determines the context for the interpretation of the other—each will do this whenever it performs main predication. This provides strong evidence in favour of the present approach: if the simple fact of type-mismatch within a static representation were the trigger for

restructuring/type-shifting, one would not expect linear order or occupancy of the PV position to make a difference to the kind of 'shift' that takes place.

The explanation of the unmarked PV position of the BN is therefore somewhat similar to that of the PV position of resultative VMs: the interpretation of the BN+V combination that is considered to be unmarked is determined by the introduction of certain structure to the main eventuality, and this structure is only can only be asserted if the BN precedes the verb and provides main predication. It should again be noted that such linear signalling is not required if the interpretation of the whole BN+V combination is presupposed rather than asserted, so that the V>BN order that arises in the presence of a PV focus or negation when the verb is finite does not contradict this analysis.

6.4.2 Adverbs

The distribution of different adverbs in the Hungarian sentence involves complex and little-researched associations between different classes of adverb and the use of different pre-verbal positions. Certain adverbs can represent asserted material only in PV (so they are 'PV-only' items, in the sense used in Chapter 4), and certain *readings* of others also seem to be strictly associated with appearance in PV. Other adverbs or readings of adverbs are more commonly associated with the position known as QP; that is, they appear before VM>V order. In both cases, this description refers to what is perceived to be a non-focused reading of the adverb; most adverbs can also be given a contrastive focus reading in PV (though there are some non-PV adverbs; see below).

A full classification of these adverbs and the characterisation of their particular lexical properties would be a major research topic in itself. With currently available knowledge, many of these adverbs are problematic for any approach to Hungarian pre-verbal syntax (typically, syntactic features are postulated in an openly *ad hoc* fashion to ensure the correct distribution). The following discussion is therefore of necessity somewhat general and speculative. Nevertheless, there are a number of indications that the behaviour of adverbs is consistent with the main predication analysis of PV.

One identifiable interpretive correlate of the syntactic distinction between adverb-in-QP and adverb-in-PV is the difference in the 'scope' of certain manner adverbs; a

subset of what Ernst (1984) calls Agent-oriented adverbs, as in cases like (6.33a,b)[10].

(6.33) a. Mari udvariatlanul kiment.
Mari rudely out(VM)-went
'Rudely, Mari went out.' [i.e. it was rude of Mari to leave]

b. Mari udvariatlanul ment ki.
Mari rudely went out(VM)
'Mari went out rudely.' [e.g. she slammed the door]

It is important to note that this pattern is not repeated with all such adverbs; for example, *okosan* 'cleverly' does not cause postposing of the VM under a reading parallel to (6.33b) (É. Kiss 2002:21). This may be an example of a curious general tendency in Hungarian for adverbs with some form of 'negative' meaning, in a very broad sense, to associate with PV more unmarkedly than those that relate to qualities that are generally perceived as being positive. I offer no explanation of this fact here, beyond a few comments below on the class of so-called 'exclusive' adverbs. It remains significant, in any case, that the difference in interpretation for those manner adverbs that do surface in PV is precisely the one shown in (6.33).

The adverbial interpretation obtained with the adverb in QP is sometimes described as the 'sentential reading', but clearly involves modification of the Agent participant, as the alternative translation in (6.33a) suggests. While it is the eventuality that makes Mari rude, the nature of the eventuality itself is unaffected by the adverb: the reading amounts to saying 'Mari did something and she did it rudely; and what she did was go out'. This way of rendering the reading in question corresponds closely to the structure of the Hungarian sentence and supports the idea from Chapter 5 that QP can introduce an assertion that is not the main predicate. The appearance of *udvariatlanul* in QP asserts Mari's rudeness with respect to some eventuality, but does not create a true propositional form, since the eventuality at this point in the parse has no internal structure of the kind associated with verbal predicates, so it cannot be said that some particular eventuality has been asserted to exist before the VM is encountered. This analysis is further supported by the fact that the same kind of reading results from encountering the adverb in the position of an 'information focus': post-verbally and carrying a pitch accent, as in (6.34). This kind of example, described by one native speaker informant as having an 'appositive feel', has essentially the same 'scope' reading for the adverb and demonstrates that

[10]For discussion of the semantics of this kind of adverb in English, see Jackendoff (1972), Thomason & Stalnaker (1973), McConnell-Ginet (1982), Ernst (1984,2000).

this reading is one in which the internal structure of the eventuality is unaffected by the adverb.

(6.34) Mari kiment udvariatlanul.
Mari out(VM)-went rudely
'Mari went out, and it was rude of her to do so.'

When the adverb is in PV, this produces what is sometimes called the 'VP reading', or, in McConnell-Ginet's (1982) terminology, the 'Ad-V' reading of the adverb. From the current point of view, this is more helpfully viewed as one in which the adverb modifies the whole eventuality. In (6.33b), the particular event of Mari going out that is being described is asserted to have the property of rudeness, in comparison to other events of Mari going out. In other words, the event in question is effectively interpreted as a unit that forms the logical subject of the predicate introduced by the adverb. This is precisely what one would expect from the appearance of the adverb in PV, given the notion of main predication.

In this sense, the so-called 'Ad-V' reading of this kind of adverb is inherently a narrow focus. The reason that this does not always result in an exhaustive interpretation is the nature of adverbial meanings: one way of going about something does not tend to preclude many other ways of describing it, while contrast is also unnecessary to make this kind of narrow focus relevant, since the assertion that some eventuality proceeds in a particular way is likely to have significant cognitive effects without direct contrast to existing assumptions about how it happens (this is nevertheless always a possibility—e.g. when the addressee of (6.33b) manifestly believes that Mari left politely—while in any case there is certainly a generalised sense of contrast with other ways of going out). As Jackendoff (1972:70) points out, the paraphrases that most nearly convey the appropriate reading of such adverbs are parallel to simpler structures that clearly show an 'identificational' meaning (precisely the one commonly attributed to Hungarian syntactic focus). Thus, the relationship between (6.35a) and (6.35b) is the same as the relationship between (6.36a) and (6.36b), when *John* is read as a narrow focus.

(6.35) a. Mary went out rudely.
b. The manner in which Mary went out was rude.

(6.36) a. I met John.
b. The person whom I met was John.

On the other hand, one might ask whether this could not be 'information focus' in the case of the adverb. After all, a sentence like (6.33b) is not necessarily felt to presuppose a focus frame (here, that Mari went out in some manner), being just as felicitously taken as a complex 'comment' about the topical Mari; a newly reported thing that she has done. On this basis, one might imagine that an adverb on its 'Ad-V' reading should be able to surface as an information focus—the addition of further information to an already-established eventuality—yet it cannot, as (6.34) shows: the so-called 'sentential reading' will always result from this. There must, therefore, be another reason why the 'Ad-V' reading is only associated with PV.

This reason is also hinted at in Jackendoff's (1972) analysis: the 'Ad-V' reading (as McConnell-Ginet's name for it suggests) is analysable as one in which the adverb and verb form a complex predicate. If (6.33b) is taken being essentially a topic-comment sentence, for example, then it is clear that the topical Mari is asserted not simply to have gone out but rather to have performed a more complex act of going-out-rudely. This is more than mere elaboration of what happened, as specified by the verb's meaning. For this complex predicate to result compositionally from the lexical items in (6.33b), it must be the case that the semantics of the adverb is able to modify some aspect of the internal structure of the verbal predicate (note that the precise interpretation of different combinations of verbs and 'Ad-V' adverbs will depend on the particular internal structure of the verb.). The adverb therefore performs a form of re-structuring operation on the verb, at a semantic level, in order to produce this reading (cf. McConnell-Ginet's 1982 account, wherein an 'Ad-V' adverb in effect changes the argument structure of the verb so that the adverb itself becomes one of the verb's arguments). The explanation of the obligatorily PV position of 'Ad-V' adverbs therefore parallels that of the unmarked PV position of resultative VMs and BNs: were the verb to be the main predicate, the eventuality would be asserted to exist with the structure determined by the internal semantics of the unmodified verb, after which point it would be too late to perform the necessary modification, in a monotonic system. It follows that any appearance of the relevant kind of adverb after the point of main predication will result in the so-called 'sentential' reading, in which the existence and internal character of the eventuality is unaffected by the ascription of the adverbial property to the Agent participant.

The case of 'sentential' versus 'Ad-V' adverbs thus brings together the two central cases of main predication: narrow focus and items that enter into complex verbal predicates with the lexical verb, by affecting the internal semantic structure of

the latter. At one level, 'Ad-V' adverbs are always narrow foci, but this very characteristic is related to the fact that at another level of analysis these adverbs operate on some element of the internal structure of the verbal predicate. Thus, (6.33b) expresses that 'Mari's going out was rude', but at another level this cashes out as 'Mari's going out was an eventuality with a certain internal structure that defines it as an eventuality of going-out-rudely'.

All of this of course brings up the question of why other adverbs, like *okosan* 'cleverly', gain the 'Ad-V' reading without appearing in PV and therefore without entering into any kind of complex predicate relationship with the verb. I leave this as an open question, pending a detailed survey of the data, noting only the speculative idea that the negative element perceived in the meaning may lend such adverbs a certain marked semantic 'weight' that causes them to take on a marked pragmatic reading (i.e. narrow focus) and/or requires some particular form of combination with the lexical verb.

There is at least one more class of adverbs whose reading can vary systematically with appearance in QP or PV (for reasons other than contrastive focus). These are depictive adverbs, which correspond to what are often non-adverbial secondary predicates in languages like English. This suggests that, again, an explanation along the lines of that given above for resultative VMs is likely to exist also for depictive adverbs—that is, in terms of the depictive in PV restructuring the verbal predicate. The details remain relatively unclear, however: the data are more complex than in the case of Agent-oriented adverbs and have not been subject to a great deal of research so far.

Some depictives are restricted to either QP or PV. When a depictive may appear in either, one factor that relates systematically to the choice of position is the difference between subject- and object-oriented readings, though this is not a simple one-to-one relationship. Ágnes Bende-Farkas has suggested one relevant generalisation in relation to this (personal communication): it appears that when an adverb is capable of either a subject- or object-oriented reading, only the subject-oriented reading is available when the adverb appears in QP, as in the example (6.37a), whereas both readings can result from the adverb's appearance in PV, as in (6.37b).

(6.37) a. Az őr részegen lecsukta a foglyokat.
the guard drunkenly down(VM)-shut the prisoners-ACC
'The guard locked up the prisoners (while he was) drunk.'

b. Az őr részegen csukta le a foglyokat.
the guard drunkenly shut down(VM) the prisoners-ACC
'The guard locked up the prisoners (while he was) drunk.'
or:
'The guard locked up the prisoners (while they were) drunk.'

The fact that the object-oriented reading is made available in such cases by the use of PV is reminiscent of the way that other VMs have been seen to interact with internal arguments; for example, the absorption of the verb's internal argument slot by BNs in PV and predication over the 'measuring' internal argument performed by resultative VMs. Conversely, the QP reading of an Agent-oriented adverb like *udvariatlanul* 'rudely' appears to associate strictly with the external argument, as in (6.33a). Clearly, there is a good deal to be said about such phenomena at levels of semantic analysis that are not easily related to the kind of representations that I employ to show main predication. In the absence of a thorough semantic analysis of Hungarian depictive adverbs, it must suffice to note that they have significant points of connection with other kinds of VM whose behaviour is explained by the main predication analysis.

A still less well understood class of adverbs is that of so-called 'exclusive adverbs' (É. Kiss 1987:90). This is made up of adverbs that typically have some form of negative meaning, in a fairly broad sense. Some of these, including *alig* 'hardly', *hasztalan* 'in vain', *későn* 'late', *ritkán* 'rarely' and *rosszul* 'badly', appear to be restricted to the PV position (when asserted), while others, such as *bonyolultan* 'in a complicated manner' and *erőtlenül* 'weakly', appear regularly in PV, without the sense of being a contrastive focus, but may also appear in QP (that is, before VM>V order), in certain contexts. Syntactic analyses have so far provided no better way of accounting for these adverbs than to declare them 'inherent foci' (É. Kiss 2002:89ff.) (the latter group being presumably 'unmarkedly foci', in some sense)—not for any interpretive reason, but in the sense that they necessarily carry a formal feature [+focus]. É. Kiss (2002:90) notes that some semantic property must be ultimately responsible for their being endowed with this feature, but does not identify what this might be.

One problem with this approach is that these adverbs can appear also with a clearly contrastive focus interpretation, as in (6.38) (one might imagine a context in which Ferenc's partner is correcting the addressee's manifest assumption about why she is upset with Ferenc).

(6.38) Ferenc későn jött haza, nem részegen.
Ferenc late came home(VM) not drunkenly
'Ferenc came home LATE, not DRUNK.'

In general, the syntactic approach to 'focus position' rests on the premise that a non-contrastive pre-verbal expression cannot be in the focus position, FP, and that the effect of inhabiting FP at the LF interface is therefore consistently a contrastive (or 'exhaustive', or 'exclusive') reading (hence the notion that contrastive focus on a VPr, for example, must involve string-vacuous movement to Spec,FP). Arguments against this approach were given in Chapter 3; here it suffices to note that it is also incompatible with the notion of 'inherent foci', if a contrastive element of meaning can be added over and above the usual reading of these expressions.

In the context of the main predication analysis, two possible explanations of the distribution of these adverbs suggest themselves. One is suggested by the analysis of constraints on quantifier distribution from Chapter 4. A number of the PV-only adverbs have a clearly quantificational element to their semantics—for example, *alig* 'hardly' and *ritkán* 'rarely' seem to quantify over instances of a certain kind of eventuality. The 'negative' aspect of the meaning of PV-only adverbs might therefore be related to the factor that keeps quantifiers like *few* restricted to PV: they are monotone decreasing. This would go along with the existence of another parallel between quantifying adverbs and quantifiers; there are 'non-PV' adverbs, typically with an element of universal quantification in their semantics, that mirror the 'non-PV' quantifiers of Chapter 4 in being excluded from PV even in a contrastive context, as illustrated by *mindig* 'always' in (6.39) (É. Kiss 1987:91).

(6.39) a. János mindig megijed.
János always VM-gets.frightened
'János always gets frightened.'

b. *János mindig ijed meg, nem csak néha.
János always gets.frightened VM not only sometimes
Intended: 'János ALWAYS gets frightened, not just sometimes.'

Nonetheless, there is another possibility, which is more likely to apply to all of the 'exclusive' adverbs. This is suggested by a fact noted by É. Kiss (2002:90): *csúnyán*, the adverb derived from the adjective *csúnya* 'ugly' is restricted to PV only when it has the meaning 'in an ugly manner' (see (6.40a,b)). It can also be used as a

degree abverb, corresponding roughly to English *badly* on a degree reading, and it appears in QP on this usage, as in (6.40c).

(6.40) a. János csúnyán írta meg a leckét.
János "uglily" wrote VM the lesson-ACC
'János wrote the lesson in an ugly way.'

b. *János csúnyán megírta a leckét.
János "uglily" VM-wrote the lesson-ACC

c. János csúnyán elvágta a kezét.
János "uglily" VM-cut the hand.3SG-ACC
'János badly cut his hand.'

This suggests that there may be a sense in which the PV-only adverbs are all in some sense inherently eventuality-oriented, 'Ad-V' adverbs of the kind represented by *udvariatlanul* in (6.33b) and are therefore of necessity main predicates, as argued above. A degree adverb, on the other hand, like a subject-oriented depictive, has no effect on the internal structure of the eventuality. Indeed, one speculative possibility is that the degree reading is actually somehow conceptualised as a property of the agentive individual, such that the underlying semantics of (6.40c) would be 'John's performance of an action was to a bad extent and that action was cutting himself', rather than 'John's cutting himself was bad'. In any case, linking the 'exclusive' adverbs to 'Ad-V' adverbials at least gives a potential explanation of the syntactic behaviour of these adverbs in terms of a general interpretive mechanism. Note that this even leaves open the possibility that certain adverbs could become 'grammaticalised' diachronically as PV-only adverbs, without the need to resort to purely syntactic features like [+focus], since details of lexical semantics such as specifications of inherent eventuality- or subject-orientation filter through in this way to affect syntactic distribution.

6.4.3 Locatives

One of the least well understood aspects of the whole PV phenomenon in Hungarian is the inclusion of non-Goal locative phrases in the class of VMs. Here, as with the PV adverbs, only a few initial observations on this phenomenon are attempted, but these suffice to indicate that locative VMs are consistent with the reasoning developed above.

That at least some locatives must be considered VMs is shown both by their unmarked PV appearance, as in (6.41a), and by the fact that the post-verbal appearance of a locative phrase in this kind of sentence is compatible only with an overt PV focus, as in (6.41b), or some other marked reading, such as the 'existential aspect' discussed in section 7.2 (and in fact analysed as a particular kind of narrow focus in section 7.2.2), as in (6.41c) (an inverted comma is used to distinguish the main pitch accent in the latter two examples)[11].

(6.41) a. Péter a szobában maradt.
Péter the room-in remained
'Péter stayed in the room.'

b. ′Péter maradt a szobában.
Péter remained the room-in
'It's Péter who stayed in the room.'

c. Péter ′maradt egyedül a szobában.
Péter remained alone the room-in
'Péter has been left in his own in the room before.'

Locatives are unusual among VMs, in that they can be full NPs (though they can also be BNs; cf. (6.25b)). Normally the appearance of a full NP in PV results in narrow focus on that NP. This is one possible reading of the word order in (6.41a)—given a suitable context and the prosody characteristic of narrow focus structures—but the unmarked reading of (6.41a) is as a 'neutral', topic-comment sentence.

The VM status of locative phrases is therefore on the face of it somewhat unexpected. There are nevertheless a number of indications that they fit into the class of expressions that must be main predicates in the unmarked case.

First, locatives are not always structurally unlike other VMs in this way. In addition to determinerless locative nominals, there are locative VPrs (or at least VPr-like particles), as mentioned in section 6.2. (6.42) illustrates these (see also the examples in (6.6)).

[11] The adverb *egyedül* 'alone' is added to (6.41c) simply to create a pragmatically more probable sentence. Hungarian *marad* translates as *stay* only in the sense of 'remain', and this is virtually incompatible with presuppositions that are involved in the 'existential' reading; see section 7.2. The basic structural point illustrated in (6.41) is unaffected—only (6.41a) can be a 'neutral' reading.

(6.42) a. A szobor ott található a parkban.
the statue there can.be.found the park-in
'The statue can be found in the park.'

b. János kint nyírja a füvet.
János out cuts the grass-ACC
'János is cutting the grass outside.'

As (6.42a) shows, the locative VPr may be co-referential with a full locative NP, in a fashion reminiscent of clitic-doubling structures in other languages, but it may also appear on its own, as in (6.42b).

The unmarked use of locatives as main predicates is consistent with some general facts about the nature of location. Main predication creates the assertion of the existence of an eventuality, and the connection between location and existence is not only a matter of logical inference—if something is located, it must exist—but also attested to be often manifested in linguistic phenomena (Lyons 1977:722) . Some similar reasoning presumably lies behind É. Kiss's brief comments on locative VMs: "Intuitively, they serve to anchor spatiotemporally the state denoted by the base verb" (2002:66). However, this alone does not explain the distribution of locatives, with or without the idea of main predication. For one thing, the use of locatives as real VMs is somewhat restricted, as outlined below. More generally, this reasoning suggests that locatives should be similar to tense, since both locations and times 'anchor' the eventuality and thereby imply its existence. But whereas locations are both regularly focusable and often unmarkedly found in PV, times cannot be put in contrastive focus by focusing tense (see section 7.2.2) and tense cannot appear unmarkedly in PV.

What has emerged so far from the argumentation of this chapter is that VMs tend to re-structure the verbal predicate in some way, whether by adding semantic structure above and beyond that introduced by the lexical verb or by in some way accessing the verb's internal structure and adapting it. Either way, the dynamic predication account predicts that the VM rather than the verb must appear in PV, so that the unmodified structure of the verb alone is not introduced. The existence of locatives that behave as VMs implies that these must introduce complex predicate structures, an idea that is given some structural support by the existence of locative VPrs.

True VM-like behaviour—obligatory PV position, on an unmarked reading—is restricted to certain combinations of locatives and verbs. As (6.41) illustrates, a full

NP locative is generally a true VM in combination with a stative verb. Locative BNs act as VMs also with non-statives, as shown in (6.43) (as the translations show, the intended meaning does not involve focus on the subject, which would rescue the linear orders in (6.43b and d)).

(6.43) a. Ferenc ágyban olvas.
Ferenc bed-in reads

b. *Ferenc olvas ágyban.
Ferenc reads bed-in
For: 'Ferenc reads in bed.'

c. Kati gyárban dolgozik.
Kati factory-in works

d. *Kati dolgozik gyárban.
Kati works factory-in
For: 'Kati works in a factory.'

Full NP locatives with most non-stative verbs appear to be able to appear unmarkedly in a post-verbal position, however, as in (6.44a). Notably, unlike the case of some adverbs, a full NP locative cannot appear in PV in the presence of a VPr without producing a reading of narrow focus on the locative, as shown in (6.44b,c).

(6.44) a. Kati dolgozik a kertben.
Kati works the garden-in
'Kati is working in the garden.'

b. Mari a kertben ette meg az almát.
Mari the garden-in ate VM the appleACC
'It's in the garden that Mari ate the apple.'

c. Mari megette az almát a kertben.
Mari VM-ate the appleACC the garden-in
'Mari ate the apple in the garden.'

Some non-stative verbs do seem to require locative full NPs to act as VMs (for example, (6.45)), while others do under certain readings; compare (6.44a) with (6.46).

(6.45) a. Réka Budapesten született.
Réka Budapest-in was.born

b. *Réka született Budapesten.
Réka was.born Budapest-in
For: 'Réka was born in Budapest.'

(6.46) a. Kati egy gyárban dolgozik.
Kati a factory-in works
'Kati works in a factory.'

b. Kati dolgozik egy gyárban.
Kati works a factory-in
'Kati is working in a factory (right now).'
[also contrastive focus related readings]

The locative in (6.45) shows obvious VM behaviour, in that the word order in (6.45b) could only be associated with some form of clearly contrastive narrow focus reading. In (6.46), on the other hand, either word order is possible with an apparently 'neutral' information structure, but with clearly different readings: with the locative in PV (suggesting that the locative is a VM), a habitual reading is produced; the version involving the locative as an information focus, post-verbally, produces a progressive reading[12].

What crucial feature do statives like 'stay', achievement verbs like 'be born' and the habitual reading of the process 'work' share? I propose that this is a kind of informational 'lightness', that requires the locative to be read as the main informative part of the utterance. In effect, these verbs (on these readings) cannot be anything but 'background' to assertion of the location. To treat the verbal meaning as an independent part of the assertion contained in the utterance is in some way uninformative—the fact that any living person was born is a tautology; the fact that someone 'stays' is uninformative without a specification or presupposition of their location; the fact that an adult human being has some paid occupation is a default cultural assumption—and the grammar of Hungarian appears to reflect this.

What this means is that when such verbs co-occur with a locative phrase, they act as 'light verbs', in something like Bende-Farkas's (2002) sense: they can only

[12]Despite the common terminology, this is not the same reading as that associated with the 'progressive construction' discussed in section 7.2

participate in an act of assertion by 'incorporating' the location, via some modification of their own internal semantic structure, and forming a complex predicate with it. This comes through on an intuitive level most clearly with the 'work' sentences: the habitual reading is intuitively about 'doing factory-work' as a single concept, whereas the progressive reading is more obviously an assertion of both what someone is doing and where they are doing it. In other words, in the latter reading the locative is more intuitively an adjunct to a 'heavy', stand-alone version of the verb—as a referent related to the main eventuality by a 'theta-role' function and introduced by conjunction into the neo-Davidsonian propositional form. It is unsurprising that locative BNs are restricted to the former strategy, since these are property-denoting and (unlike some accusative BNs) they cannot even be contextually enriched to have a referential meaning of a kind that would not be available without such enrichment processes by using a full NP.

As in the case of accusative BN incorporation, this may be a partially lexicalised property, but the trigger for any individual act of complex predicate creation also involves the relation of linguistic form to context, as the dynamic approach predicts. This is likely to be the basis of an interesting grammatical contrast involving the verb *dolgozik* 'work': replacing *egy gyárban* 'a factory' with *a gyárban* 'the factory' in (6.46) is reported to remove the VM-like properties of the locative phrase under either word order. This is possibly related to the lexical properties of the 'modified' version of the verb, but may simply come down to contextual factors: if the factory in question is not mutually manifest as uniquely relevant, and hence needs to be introduced as a new discourse referent using the indefinite article, this implies a context in which Kati's (habitual) occupation is being reported, and in which the concept of working is therefore backgrounded. On the other hand, sufficient manifestness of the factory to cause the use of the definite article favours a context in which it the fact that Kati is working is alone newsworthy, so that the locative is naturally read as an adjunct to the 'heavy' version of the verb's semantics. The complex predicate reading thus disappears as a result of the inference regarding the contextual relevance of the particular combination of verb and locative.

Further support for the idea that a verb like *dolgozik* forms complex predicates because of its informational 'lightness' in combination with certain locatives comes from the behaviour of locatives with more specific verbs of working. Even on a habitual reading, a more specific verb, such as *táncol* 'dance' does not cause even an indefinite locative to show VM behaviour (that is, to achieve the relevant reading only in PV). Thus, (6.47) allows a habitual, topic-comment reading even though

the locative is indefinite and post-verbal (cf. (6.46b)). This is because the verbal meaning itself, being not so predictable as 'work', is informative enough to be an independent part of the assertion itself, not merely background to the information in the locative phrase—and hence can be the main predicate.

(6.47) Ildi táncolt egy bárban.
Ildi dances a bar-in
'Ildi dances in a bar.'

If this analysis is on the right lines, then once again the explanation of VM behaviour is to be found in the fact that complex predicate formation involves modification of the contribution of the verb, so that allowing the verb alone to be the main predicate would block certain readings and in some cases make any subsequent VM expression uninterpretable. As with the analysis of certain adverbs, locatives also represent a case where the focusing function of main predication and its role in creating complex predicates find a point of contact[13].

6.5 Summary

While Chapter 5 provided an explanation for the postposing of VMs in the presence of focus—nothing may intervene between narrow foci, as main predicates, and the tensed verb—this chapter has explained the unmarked pre-verbal position of VMs in 'neutral' sentences. This explanation is dependent on the dynamic nature of the approach.

Verbs from within VM+V combinations differ from the independent form of the same lexical verbs in the contribution they make to the semantic structure of the eventuality. The verb consequently cannot be an unmarked main predicate unless it appears independently of any VM, since otherwise this would assert the existence of an eventuality with a structure within which a subsequent VM item could not be interpreted as such. Only when the contribution of the verb to a particular VM+V combination is predictable can such a verb be main predicate, in principle. This means that only the reading of narrow focus on the lexical verb's contribution is possible with the verb in PV, since this will involved a presupposed VM+V structure. Even this is not possible for most speakers in the case of VPrs, the

[13]The discussion of the relative informativeness of verbs in relation to a construction associated with focus invites comparison with the much-discussed English phenomenon of 'early' stress placement even in 'out of the blue' contexts, in examples like *NIXON died.* See Ladd (1996:188ff.) and references therein.

form of VM that is least referentially independent and most frequently creates non-compositional semantics. Since the intention to produce a narrow focus reading is unlikely to be recognised at the point of main predication, this could lead to 'garden path'-style breakdown and reanalysis of the parse, apparently making a purely phonological focusing strategy (that allows the VM to remain pre-verbal) easier to process.

The diversity of the class of VMs is traceable to the different kinds of variation in the semantic structure of the verbal contribution that can be caused by different forms of complex predicate forming process. These details of these processes are a matter for other research, but certainly can involve changes in conceptual, argument or temporal structure. The analysis of locative VMs suggests that the difference between a true complex verb and a conventional verb-adjunct interpretation can even be determined in some cases by online inference over the informational 'lightness' of the verb, either lexically or in particular contexts.

There remain some important questions surrounding VM distribution. Having explained their unmarked PV position, two particular constructions must be explained in which VMs appear post-verbally, despite the apparent lack of any narrow focus. Also, the postposing of VMs in the presence of sentential negation must be accounted for. These matters are the subject of the following chapter.

Chapter 7

'Aspectual Constructions' and Negation

7.1 Overview

The analysis in Chapter 6 of the relative positions of VM and verb brings up the question of why VMs follow the verb in two particular constructions that on the face of it do not involve narrow foci. One of these expresses a certain kind of progressive reading, the other the so-called 'existential' or 'evidential' reading. Section 7.2 deals with these constructions in terms of main predication, showing that one of them does not involve true VMs at all, but rather alternative readings of expressions that can be VMs, while the other does in fact involve a certain kind of narrow focus, despite there being nothing in the PV position, immediately preceding the tensed verb.

The other remaining puzzle involving the distribution of VMs is why they should postpose in the presence of the negative particle *nem* when it performs 'sentential negation', but co-exist pre-verbally with *nem* in certain other contexts. This boils down to the general ability of *nem* to appear pre-verbally with a PV focus, but this in itself remains to be explained. These issues are discussed in section 7.3, where it is shown that the main predication analysis avoids the syntactician's *ad hoc* solution of stipulating two positions for *nem*, given the maximally simple (if unconventional) assumption that *nem* introduces a consistently narrow scope negation operator.

7.2 The 'existential/evidential' and 'progressive' constructions

As mentioned in Chapter 1, É. Kiss's (1987,1994) original 'single position' analysis of Hungarian PV (see Chapter 1, section 1.3.1) includes two extra objects that

can fill the relevant pre-verbal position (Spec,VP in É. Kiss 1994). These are the phonologically null operators EXIST and PROG that are claimed to create certain aspectual readings by taking scope over the verb and subsequent material. The reason for positing these operators in the PV position is that the relevant readings occur when a VM is postposed to a post-verbal position, as in (7.1) (examples due to É. Kiss 1994, 49ff.). Note that word order does not tell the whole story here: the two constructions are distinguished prosodically: an inverted comma signifies a pitch accent on the following word[1].

(7.1) a. János ′nyitotta ′ki az ′autoját, amikor ′odaérkeztem.
János opened out(VM) the car-his-ACC when there-arrived.1SG
'János was opening his car when I got there.'

b. János ′nyitotta ki az autoját kulcs nélkül.
János opened out the car-his-ACC key without
'János has opened his car without a key (before).'

(7.1a) exemplifies the so-called progressive construction (henceforth PC), in which É. Kiss (1994) posits a pre-verbal silent PROG operator. This features a pitch accent on the verb and on each major constituent that follows it, including the VPr. As Kiefer (1994) points out, this is only possible when the combination of verb and VPr maintains some of the VPr's underlying directional semantics (e.g. *ki* 'out' supplying the 'outward' part of the action of opening a car door in (7.1a)): if the VPr merely serves telicising function when it is pre-verbal, it cannot serve a 'progressivising' function post-verbally.

(7.1b) illustrates the construction in which É. Kiss (1994) posits the operator EXIST in Spec,VP. This is variously known as the 'existential', 'experiential' or 'informing' aspect (or tense, according to Piñón to appear). I shall simply refer to it as the EC, for 'existential construction'. This conveys that the eventuality described has already occurred, or, given a morphologically present tense verb or future auxiliary, that it will occur at some future time. In either case, as Piñón (to appear) details, it must be the case that the eventuality in question can re-occur at least once. Hence, the EC is impossible in a sentence like (7.2), assuming it does not occur in

[1]I do not mark topics in this way: while they do carry a pitch accent, this is slightly different to the accent in question (Rosenthall 1992).

a conversation about reincarnation (note that the English translation with '*have ... before*' is also anomalous, giving an initial clue as to the basis of this reading)[2].

(7.2) #Réka 'született Budapesten.
Réka was.born Budapest-in(VM)
Intended: 'Réka has been born in Budapest (before).'

7.2.1 Previous analyses

The 'abstract operator' analysis

Treating these constructions as the result of abstract pre-verbal operators is problematic in a number of ways, yet has been widely accepted in the syntactic literature until recently. Not the smallest of the problems with this approach is the general theoretical point on which Piñón (1995:168) quotes Harlig (1989:59): "the positing of invisible aspectual operators ... to fill these positions, which in every other case must be filled by lexical material, solely to generate the necessary word order, [is] completely ad hoc"[3]. Not only is the value of an operator-based 'explanation' therefore questionable as an overarching matter of principle; this kind of approach also compromises particular analyses, since it artificially assumes that the observed interpretation directly reflects the contribution of some syntactico-semantic primitive (an analytical tendency already shown, in Chapter 3, to have caused problems in the study of focus). As a result, connections to other kinds of construction, such as those suggested by the prosodic characteristics of the PC and EC and by the effects of V>BN orders, are ignored, alongside the possible contribution of inferential processes.

At the empirical level, the problems with the operator-based approach relate to the close parallelism that it implies between the PC and the EC. Whether under a single position analysis of PV, as in É. Kiss (1987,1994), or under the assumption that EXIST and PROG (and foci and VMs) each occupy different abstract pre-verbal projections, as in Piñón's papers, the implication is that the syntactic parallelism seen in (7.1) results from parallel derivations. For É. Kiss (1994), this means the occupancy of Spec,VP in each case forces the VM to remain post-verbal; for Piñón,

[2]The acceptability judgement here (due to Piñón to appear) refers only to the intended EC reading. The word order and stress pattern in (7.2) is possible on another reading: that of contrastive focus on the verb.

[3]Despite showing some sympathy with this argument, Piñón develops analyses of both the PC and EC in terms of abstract operators (1995 and to appear, respectively), though not under a 'single position' analysis of PV.

V-movement in the manner of Bródy (1995), to functional projections above VP, strands the VM in both PC and EC.

This presumed parallelism is not sustainable. The striking prosodic contrast is one indication of this. While within a conventional syntactic approach the prosodic structure could be argued simply to be triggered by the presence of the operators themselves, this leaves the nature of the particular prosody associated with each construction entirely unexplained. A further asymmetry is that the EC can be found in VM-less sentences (again with the verb stressed and all post-verbal material destressed), whilst it makes little sense to speak of the PC in the absence of a VPr: if the aspectual possibilities of a simple verb may be related to abstract operators, there seems no way to prevent the supposition of as many abstract operators as there are aspectual readings of verbs—a situation that no-one would consider explanatory.

However, the crucial counter-evidence comes (not for the first time in this thesis) from the nature of sentences containing tensed auxiliaries. The EC with the future time auxiliary *fog* is discussed in Piñón (to appear) and works as one might predict from other 'non-neutral' sentences, with the VM appearing immediately before the infinitival main verb, in the post-auxiliary domain; see (7.3a). Examples with auxiliary constructions are not found in the literature where the PC is analysed, however. This is perhaps because such an example requires a rather unusual context—predicting that someone will be in the middle of doing something when something else happens in the future—but it is not impossible. When such an example is elicited, the resulting sentence, for example (7.3b), proves to destroy the apparent parallelism between the EC and the PC.

(7.3) a. **EC:** Mari ′fog lesielni a lejtőn.
Mari will down(VM)-ski-INF the slope-on
'Mari will ski down the slope (still).'

b. **PC:** Mari ′sielni ′fog ′le a ′lejtőn, amikor ...
Mari ski-INF will down(VM) the slope-on when
'Mari will be skiing down the slope, when ...'

Furthermore, as (7.4) shows, the PC shows V>VPr order even when both verb and VPr are post-auxiliary, in the presence of a PV—in spite of the general belief that

PV focus neutralises the grammatical expression of aspectual distinctions (É. Kiss 1994:47)[4].

(7.4) 'Mari fog 'sielni 'le a 'lejtőn, amikor ...
Mari will ski-INF down(VM) the slope-on when
'It's Mari that will be skiing down the slope, when ...'

(7.3b) and (7.4) indicate that there must be a fundamental difference between the relationship between structure and interpretation involved in the PC to that involved in the EC. This runs contrary to all existing syntactic analyses, but is predicted by the dynamic account of VM behaviour worked out in Chapter 6.

The AspP analysis

É. Kiss's more recent analysis (2002:62–67) avoids many of the problems associated with abstract operators by replacing PROG and EXIST with a pre-verbal AspP projection, whose head may be specified as carrying different aspectual features (e.g. [+/−eventive], [+/−perfective]). As mentioned in Chapter 1, this is no longer a 'single position' analysis of PV: VMs are claimed to be generated post-verbally and move to Spec,AspP in 'neutral' sentences. The verb is also assumed to move to the Asp head position to check aspectual features. When the features of the Asp head do not match those of any VM, the VM is omitted entirely, or, if the directional semantics of the VM is essential to the meaning of the intended verbal predicate, it remains *in situ*—below the verb, which still moves to Asp. Since É. Kiss assumes that material within the VP is always referential, the VM in such cases is not read as part of a complex verbal predicate but rather as a referential directional adverb. This account therefore has the virtue of deriving the word order of the PC in a way that explains Kiefer's (1994) observation that the VPrs involved in the PC always maintain 'literal' directional semantics.

On the matter of this 'literalness' constraint, the evidence is that the conclusion reached by É. Kiss is the right one. As Kiefer points out, VPrs in the PC are interchangeable with a form bearing the suffix *-felé*, which uncontroversially produces

[4]Here the need to keep the verb and VPr prosodically distinct for the sake of the PC appears to lead to the suspension of the usual destressing of post-verbal material in the presence of a focus. The tensed verb remains destressed, however, so the essential prosodic signal of the PV relation is maintained.

an adverbial form (rather in the manner of changing *down* to *downwards* in English). The examples in (7.5) are thus essentially equivalent in meaning and appear to involve the same grammatical construction.

(7.5) a. ′Ment ′le a ′lépcsőn, amikor ...
went down the stair-on when

b. ′Ment ′lefelé a ′lépcsőn, amikor ...
went downwards the stair-on when
'S/he was going down (on) the stairs, when ...'

The interchangeability of VPr and VPr-*felé* supports the idea that VPrs themselves have a purely adverbial function in the PC.

Another feature of É. Kiss's (2002) account with which my own analysis concurs (see section 7.2.2, below) is that it connects the EC to PV focus, thereby at least partially breaking the previously assumed parallelism of the EC and the PC and also explaining the prosodic character of the EC. É. Kiss argues that the EC must involve raising of the verb to F, the head of FP—although she does not explain how the interpretation of the EC relates to the interpretation of focus[5].

É. Kiss (2002) could be said to predict the data in (7.3b) and (7.4) (which she does not discuss), though only via some rather arbitrary assumptions about the conditions under which AspP is projected, which in some ways raise more questions than they explain. É. Kiss posits the projection of AspP in the post-auxiliary domain when the sentence contains a PV (i.e. pre-auxiliary) focus or negation, in order to account for the fact that VMs precede the main verb infinitive under these circumstances. The would be consistent with the data from the PC with an auxiliary. However, the assumption of the presence of AspP in these circumstances seems otherwise quite *ad hoc*: there exists no reason independently of the data why AspP should be projected beneath tense in just these circumstances. After all, there is no AspP assumed beneath tense when PV focus appears before a finite main verb, nor can the projection of AspP be connected to the position of the main verb, since the verb is said to move to Asp, not *vice versa* (and this would in any case contravene É. Kiss's generally Minimalist approach).

[5]Besides the prosodic evidence, É. Kiss's stated reasons for connecting the EC to the FP projection are purely syntactic. She assumes that the verb in the EC must move to a higher position that AspP because she assumes that an adverb like *már* 'still', which may appear between the verb and VM in the EC, is adjoined to AspP. Note, however, that this contradicts É. Kiss's claim elsewhere in the same work that FP and AspP do not co-occur, which is her explanation of the post-verbal position of VMs in the presence of PV focus (see Chapter 1, section 1.3.3).

Thus, while the use of AspP and FP in the analysis of the PC and EC represents a considerable improvement on the 'abstract operator' approach in terms of empirical coverage, it falls short of truly explaining the relationship between the structures involved and their interpretations. To the extent that É. Kiss's (2002) analysis does have explanatory value, this can be viewed as a technical reflection of certain insights that are more fully explicated in terms of the dynamic account developed in Chapter 6 of the behaviour of VMs.

7.2.2 The main predication analysis

The existence of both the EC and the PC and their associated interpretations follow, without further stipulation or the introduction of any new machinery, from my dynamic account of VM behaviour in terms of main predication. Moreover, further data discussed by Kiefer (1994), involving post-verbal occurrences of BNs, are explicable by the same reasoning that accounts for the PC with VPrs.

Explaining the 'progressive construction'

When a BN follows the main verb, and both carry a pitch accent, the sentence that results has a perfective aspectual reading, as shown in (7.6), despite the durative reading normally associated with the combination of a BN and a verb (in BN>V order).

(7.6) Jancsi ′vágott ′fát.
Jancsi cut wood-ACC
'Jancsi has cut wood.'

Thus, such sentences appear structurally similar to the PC, yet have practically the opposite aspectual effect. Under the 'abstract operator' approach, there is no alternative but to posit the existence of a further, perfective operator (Bende-Farkas 2002:135). Note that the prosodic similarity of this perfective operator with the PC but not with the EC would be unexplained in this case.

É. Kiss's (2002) AspP analysis potentially fares better: assuming an AspP carrying the feature [+perfective], a BN would not be expected to raise to Spec,AspP, so this word order is in a sense predicted. On the other hand, the AspP account suggests that BNs are inherently non-perfective, since this must presumably be the reason for their unmarked pre-verbal position, in which case it is unclear how there can be a BN in a sentence like (7.6) at all. There is an alternative motivation for

the usual raising of BNs—in fact the one proposed by É. Kiss (2002:70), who is vague on the aspectual properties of BNs—which is their non-referentiality (given É. Kiss's association of VP-internal positions with referential expressions). This faces essentially the same problem: the position of the BN in (7.6) should be an impossibility. Note that the reasoning applied by É. Kiss to post-verbal VPrs cannot be employed in this case: the BN as such cannot be said to contribute an indispensable part of the semantics of the verbal predicate—even if the nominal were somehow essential, this would give no reason why it should be unquantified.

In fact, I show below that É. Kiss's reasoning here captures an important insight: the BN in sentences like (7.6) does have to take on a kind of referential reading. However, the process by which it does so can only be coherently expressed within a dynamic, interpretation-based approach and with inference over extra-linguistic context. The relevant correspondence between word order and meaning could of course be forced using the tools of a modern generative framework, but not without the entirely *ad hoc* move of adding some feature like [+referential] to a bare nominal, in the context of a language in which (non-)referentiality is apparently otherwise determined entirely by combinatory semantic principles, in addition to features relating to complex contextual constraints.

The basic matter that the AspP approach seems to reflect is whether or not the VM and verb form a complex predicate in a given construction. As mentioned in Chapter 6, the conditions for interpreting a VM+V combination with the structure of a complex predicate of the appropriate kind include prosodic phrasing that ensures that VM and verb are grouped together as a unit that carries a single pitch accent, rather than each carrying a separate accent, and the VM preceding the verb where possible (that is, *modulo* independent morphological constraints). Both of these facts follow from the main predication analysis. As outlined in Chapter 5, every non-topical expression that carries a pitch accent (that is, every 'information focus') is treated as a separately asserted predicate, even though only one of these is the main predicate. Furthermore, it is shown in Chapter 6 that the necessary semantic structure for the combined meanings of VM+V combinations are introduced by the VM and that if the verb's semantic contribution is assessed first, this structure cannot be subsequently created. It follows that if a VM appears post-verbally and accented, it cannot be interpreted as part of a VM+V complex. Therefore, the only VMs that do appear in this kind of construction will be those particular cases that, due to elements of their lexical semantics and/or their relation to extra-linguistic context, are capable of taking on an independent reading.

This accounts for the progressive aspect and the adverbial reading of VPrs in the PC. A PC sentence like (7.7a) (cf. É. Kiss 1994, 47) turns out to be nothing more than (7.7b) (i.e. (6.5a) repeated with indications of stress added) with an extra adverbial expression. The verb is contributes the same semantic material, not being a part of any complex verbal predicate. It is therefore unsurprising that (7.7a) and (7.7b) show compatibility with the same durative adverbial phrase.

(7.7) a. Mari öt percig 'sielt 'le a 'lejtőn.
Mari five minute-for skied down the slope-on
'Mari skied downwards on the slope for five minutes.'

b. Mari öt percig 'sielt a 'lejtőn.
Mari five minute-for skied the slope-on
'Mari skied on the slope for five minutes.'

The same argumentation also accounts for, and by extension helps to define, a complex and rather obscure kind of constraint on post-verbal accented BNs. The PC therefore encapsulates these cases and can henceforth be understood as both 'progressive construction' and 'perfective construction'. The constraints in question are described by Kiefer (1994), who notes that sentences like (7.6) or (7.8a) are possible, while judging (7.8b) unacceptable (the asterisk is Kiefer's).

(7.8) a. 'Szedett 'szilvát.
plucked plum-ACC
'S/he has picked plums.'

b. *'Nézett 'tévét.
watched television-ACC
'S/he has watched television.'

In addition, some V>BN structures require certain contexts to make them acceptable. For example, Kiefer comments that "the acceptability of [(7.9a)] depends on whether—in the given context—the sentence can be interpreted as having made available grass for some purpose" and notes that this accounts for the more marginal status of (7.9b), since "the contexts in which hair is needed are less obvious than the ones in which grass is needed" (1994:447).

(7.9) a. 'Vágott 'füvett.
cut grass-ACC
'S/he has cut grass.'

b. 'Vágott 'hajat.
cut hair-ACC
'S/he has cut hair.'

Simply making the object available for some purpose cannot be the condition on the PC with BNs, however. Kiefer notes that (7.10ab) are also acceptable.

(7.10) a. 'Mosott 'kezet.
washed hand-ACC
'S/he has washed his/her hands.'

b. 'Tisztított 'cipőt.
cleaned shoe-ACC
'S/he has cleaned his/her shoes.'

It is also noticeable that the PC brings about some kind of 'individuation' of the BN. The hands and shoes in (7.10a,b) are inferred to be the particular ones belonging to the subject of the sentence. Similarly, (7.11a) and (7.11b) show that the BN is interpreted as referring to an individual cake or letter, despite having a property reading only when in PV.

(7.11) a. 'Sütött 'tortát.
baked cake-ACC
'S/he has baked a cake.'

b. Pisti 'írt 'levelet.
Pisti wrote letter-ACC
'Pisti has written a letter.'

Kiefer concludes that all the acceptable examples involve changes of state, and suggests that the objects of change of state verbs can always be individuated. Hence the unacceptability of describing television-watching using the PC, as in (7.8b): this is an activity that doesn't change the state of anything in the world. Further consideration of the role of context supports the broad outlines of this generalisation, but suggests that the relevant notion of 'change of state' cannot be too strictly

extensional, but must be broad enough to accommodate activities that bring about what is conceptualisable as a change of state only in some internal, cognitive sense.

For example, Kiefer's rejection of (7.8b) itself appears to be too categorical, at least for some speakers. Certain kinds of context can rescue even this example. For example, imagine that János is living in a remote part of the countryside and Mari concludes that János can't possibly have heard about some momentous event that has occurred in Budapest. Under these circumstances, Ferenc may contradict Mari by uttering (7.8b): János will know the news, because he's watched television. The change of state involved here is one of János becoming informed as a result of 'sufficient' television watching.

This state of affairs is precisely what is expected from a dynamic perspective: grammatical procedures create a point in the parse at which only a certain kind of interpretation of an incoming expression can contribute to a coherent overall interpretation of the sentence. If the lexical features of the expression interact with the extra-linguistic context in such a way that the appropriate reading can be inferred, a coherent and relevant propositional form is created and the sentence is judged acceptable. In other cases, the sentence may appear quite impossible.

The nature of VPrs in the PC has already been accounted for in these terms. The details of the interpretation of BNs in the PC are as follows. When the verb appears before the BN, the argument-absorbing operation referred to in section 6.4 cannot take place and no complex predicate interpretation is possible. Instead, the normal predicate-argument and temporal structure associated with the verb in question is projected—and this structure cannot be destroyed in a monotonic system. In the case of the transitive verbs in examples (7.6)–(7.11), this includes the introduction of an object metavariable linked to the verb by the θ_{ACC} function. Thanks to the semantic type of the metavariable, this means that an individuated object referent is presupposed to exist. Therefore, when an accusative-marked BN is subsequently encountered as 'information focus' material, it can only be integrated into the eventuality by substitution for the metavariable, and this is only possible if it can be taken to introduce a referent.

Given that the lexical semantics of the BN only introduces a property, the quantification and consequent individuation of the BN can only come from some element of the extra-linguistic context, on the basis of relevance-theoretic inference. The fact that a certain quantity of grass or hair is required—say, for hay- or wig-making—gives a suitable quantification, for example. Similarly, there is a sense in which

someone has to watch a certain amount of television before they can be reliably assumed to be informed about current affairs on this basis, so again a kind of quantity is inferable in just this kind of context. One may imagine semantic material being added to the propositional representation on the basis of this kind of contextual enrichment. For example, a quantifying predicate such as 'an amount appropriate for hay-making' may be introduced along with a variable that the predicate *grass′* can serve to restrict. The BN is thus able to contribute to a propositional form as if it were a full NP, if the grammatical context forces this as the only possible reading, and only if the extra-linguistic context provides the semantic material to complete this kind of contribution.

One final point remains to be explained (as it would have to be under any analysis of this phenomenon). Given that an individuated reading is required by the grammatical context in this way, one might ask why these forms exist, when a full NP could be used instead, requiring no inferential enrichment processes of this kind. The appear to be two (related) reasons for using a BN in this way, both of which are justified by the production of particular contextual effects. One is the accurate communication of vagueness: no quantifier or determiner could adequately express the highly context-dependent quantities conveyed, which tend to be of the nature of 'some sufficient quantity for purpose x', rather than any numerically definable amount. Indeed, there need not be a clearly definable amount even in principle (as in the television-watching case), as long as the context makes the existence of some degree of quantification a relevant factor. This leads on to the other reason: the relative unimportance of precise quantification. Even in cases like (7.11a,b), in which the stereotypical production of one object at a time leads to the inference of a strict quantity, this quantity is not important to the meaning of the sentence as a whole: the important message is that the action in question (e.g. letter-writing or cake-baking) took place up to some point at which it could be inferred to be a completed action—i.e. an accomplishment. It so happens that in most contexts this is when a single letter or cake has been produced, so these examples appear to have the translations that Kiefer gives them, but this could not be said to be the main point of the utterance. The communicator thus chooses to employ an unquantified NP in order to emphasise the purpose of the action described rather than simply 'measure' it.

As made clear in the discussion of É. Kiss (2002) in section 7.2.1, the structural properties of the EC point quite clearly to its being a species of PV focus. Remarkably, this possibility has been largely ignored in the literature, the generally held assumption apparently being that the EC must be viewed as a quite independent, irreducible phenomenon, whence the treatment of it as the result of an EXIST operator in some pre-verbal position. The most recent and thorough account of this construction, Piñón (to appear), retains this strategy, without entertaining any possible link at an interpretive level to the nature of PV focus (Piñón mentions the structural similarity to focusing only to mount a purely syntactic argument against É. Kiss's (1994) locating the EXIST operator in the same position as focus—an issue that does not arise from a dynamic perspective). As noted above, such analyses therefore fail to account for the prosodic character of the EC in particular.

The general unwillingness to link the EC and focus is presumably related to a perception that the former involves a quite unique kind of interpretation, and indeed there are aspects of the meaning of the EC that seem quite idiosyncratic—in particular, the constraint against its occurrence with 'one-time-only' eventualities, as illustrated in (7.2). Yet there are also many clear parallels on the interpretive side between focus and the EC. Most importantly, the EC involves the presupposition of an eventuality as the background for an assertion. Recall the description of the EC from section 7.2 (which is based on that in É. Kiss 2002): the EC asserts that an eventuality of a certain kind has occurred already or will occur at some point in the future (with the possibility of recurrence in both cases). In effect, the existence of an instance of the eventuality in question is asserted. For this to be the assertion, the nature of the eventuality must be presupposed. Indeed, the relevance of such an assertion is typically established in relation to a manifest assumption that such an event has not happened and/or can't happen. In other words, the EC regularly has the 'corrective' sense that is often associated with the use of PV focus.

Thus, it seems quite accurate to describe the EC sentence in (7.1b), repeated here as (7.12), as containing the focus frame 'an eventuality of János opening his car without a key' and the assertion that an instance of such an eventuality exists at a temporal index (which is separately established as a past time referent within the temporal logic system). This gives a natural explanation to the prosodic structure of the EC: the unstressed post-verbal material simply has the same phonological characteristics as any other presupposed focus frame.

(7.12) János ′nyitotta ki az autóját kulcs nélkül.
János opened out the car-his-ACC key without
'János has opened his car without a key (before).'

Another piece of evidence that supports the analysis of the EC as a kind of focus comes from its interaction with 'definiteness effect' verbs. As mentioned in Chapter 4, section 4.3, the definiteness effect is known to be neutralised by PV focus on a constituent other than the internal argument; that is, in the presence of focus the internal argument is able to be a definite NP (with the verb as usual appearing in the 'definite conjugation' when it has a definite object) even with verbs that normally require an indefinite internal argument. An example of such a verb is *hoz* 'bring', as shown in (7.13a,b). The EC also allows for the appearance of a definite internal argument with verbs like *hoz*, as shown in (7.13c).

(7.13) a. János hozott egy széket.
János brought(INDEF) a chair-ACC
'János brought a chair.'

b. *János hozta a széket.
János brought(DEF) the chair-ACC

c. János ′hozta a széket.
János brought the chair-ACC
'János has brought(DEF) the chair (already).'

This is a strong indication that the EC not only bears structural similarities to PV focus, but involves the same kind of interpretation.

If the EC involves focus, what is in focus? That is to say, what is the main predicate that takes on this reading? A syntactically focused expression is expected to be found to the immediate left of a destressed tensed verb, but the EC construction shows the tensed verb lacking any such PV expression and carrying stress itself. Is it possible that the verb itself is in focus? The future version of the EC, with auxiliary *fog*, shows that, despite the appearance of examples like (7.12) and (7.13c), the EC cannot boil down to focus on the main verb, since here, uniquely, the auxiliary is stressed (as in (7.3a))[6]. The 'early' position of the main verb in (7.12) and (7.13c) is therefore once again down to independent morphological necessity. The most

[6]As noted in Chapter 1, this is problematic for Szendrői's (to appear) stress-based analysis of PV effects, which claims that VM>*fog*>$V_{[-FIN]}$ order is due to *fog* and similar auxiliaries having an inherent inability to carry a primary stress (see also É. Kiss 2002, 206).

obvious hypothesis is therefore that the tensed verb is structurally 'in focus' in the EC and that this corresponds to temporal information itself being the main predicate.

This idea explains many properties of the EC. As outlined in Chapter 5, section 5.3.2, according to Kempson *et al.* (2000), the contribution of tense to the description of any eventuality provides the essential 'anchor' point, but the remaining semantic content of tense is processed quite separately. This means that the temporal anchor is uniquely suited to asserting the existence of an eventuality whose descriptive content is entirely presupposed: if an eventuality obtains at an index $\mathbf{T}_i$, it must exist—and if this is all that is asserted of the eventuality at the point of main predication, its content must all be retrievable from context.

Nevertheless, one might expect a different reading from placing the contribution of tense morphology in narrow focus. On the face of it, this idea is suggestive of contrast between one tense with another; readings such as 'It's not that he WILL eat the apple, but that he DID eat the apple'. In fact, not only is this not the reading associated with $V_{+\text{TENSE}}$ >VM structures; it is not expressible using PV focus at all. Indeed, native speakers profess some puzzlement at how such a meaning should be expressed at all, the least awkward option apparently being that in (7.14).

(7.14) (?) János nem meg ′fogja enni az almát, hanem meg ′ette az almát.
János not VM will eat-INF the apple-ACC but VM ate the apple-ACC
'It's not that János WILL eat the apple, but that he DID eat the apple.'

In other words, a purely phonological strategy, using unmarked word order, is the only way to convey such a meaning—just as in the case of contrastive focus on a universal quantifier, discussed in Chapter 4, section 4.6. As in that case, the reason for this is that the would-be focus simply cannot be the main predicate. In the case of tense, this is for reasons indicated in Chapter 5, section 5.3.2: the contribution of particular tenses or of the future auxiliary *fog* is not introduced into the semantic representation as predication over the main eventuality variable, but rather affects temporal variables via a separate logical system.

While the material associated with particular tenses and times does not predicate over the main eventuality, there is one semantic entity introduced by every tense morpheme that does. This is a function from eventualities to a temporal index, schematically represented in Chapter 5, section 5.3.2 as $f(e, \mathbf{T}_i)$. This function is

therefore able to perform main predication as a result of a structural signal to interpret the tense morpheme as providing the main predicate. Recall that the meaning of this function on its own is simply that the eventuality e has a temporal index $\mathbf{T}_i$; in other words, the simplest possible indication that the eventuality occurs.

This is the most general way possible of asserting that an eventuality exists, in effect allowing for a propositional form with entirely presupposed content. In section 7.3, it will be shown that this has important consequences for the analysis of negation. The current point, however, is that a structural indication of focus on tense naturally yields a truly 'existential' reading that provides a clear basis for the interpretation of the EC.

Therefore, in terms of the epsilon-based main predicate representations, the simple EC sentences (7.15a,b) both correspond to the formula in (7.16) (the difference between them being determined in the separate temporal logic system in which $\mathbf{T}_i$ is given some definition, relative to other times).

(7.15) a. Réka ′lakott (már) Varsóban.
Réka lived already Warsaw-in(VM)
'Réka has lived in Warsaw (before).'

b. Réka ′fog (még) lakni Varsóban.
Réka will still live-INF Warsaw-in(VM)
'Réka will live in Warsaw (still).'

(7.16) a. $f((\varepsilon, e\,[f(e, \mathbf{T}_i)\,\&\,\mathit{live}'(e)\,\&\,\theta_{\mathrm{NOM}}(e,\mathit{reka}')\,\&\,\theta_{\mathrm{LOC}}(e,\mathit{in\text{-}warsaw}']), \mathbf{T}_i)$

The structure of the EC is therefore related to the 'existential' part of its interpretation without further stipulation by the main predicate account. Other elements of the interpretation follow to some extent by inference on this basis. The constraint on the repeatability of the eventuality (as illustrated by (7.2))—which Piñón (to appear) encodes in the truth-conditional semantics of his EXIST operator—results from one way of making relevant the assertion of the existence of an instance of an eventuality. The inference is that the fact that the eventuality is known to have one occurrence may be taken as evidence for its being not impossible and therefore as evidence that it may happen again. Thus, the EC has an encoded 'existential' part and an inferred 'evidential' part to its meaning, corresponding to its two most common names in the literature. For example, in (7.12), the fact that János has opened his car without a key before means that it is reasonable to believe he could do so

again—and any previous expectations that he could not manage this are thereby contradicted. Similarly, (7.15a,b) provide evidence that Réka is always capable of living in Warsaw (despite the addressee's doubts about her dealing with a Polish-speaking environment, say), in the form of the knowledge that she has lived there before or is known to be going to live there. If this is the way in which the EC assertion of the existence of an eventuality achieves relevance, it is clearly incompatible with eventualities that are intrinsically limited to one occurrence, such as that in (7.2).

It is not clear, however, that this is the only kind of inference that could be drawn from the existence of an instance of a given eventuality. It may be that this construction has become to some extent conventionalised to perform its 'evidential' function, as has apparently also happened to the English construction *x has V'ed before* (compare (7.2) with the English sentence ??*Réka has been born in Budapest before*, which is intuitively infelicitous for similar reasons.). Indeed, the EC shares a number of features with kinds of perfective aspect manifested in many languages, as detailed by Piñón (to appear), suggesting that it may express some universal aspectual function, in some sense. Even if this is the case, the current analysis suggests that everything beyond the basic existential element of the interpretation should be viewed as some higher-level constraint on the use of the construction, rather than an encoded property. This might be comparable to the association of certain syntactic constructions with particular registers. Encoding further detail into the interpretation of the construction as such is undesirable since the restriction of the encoded meaning to the 'existential' assertion is consistent with the explanation of so many other aspects of the syntax of PV. These include the involvement of tense in the syntax and interpretation of negation, as shown in section 7.3, below.

7.3 Negation

Chapter 6 shows why VMs tend to be main predicates and hence appear in PV. This in turn provides an explanation for the postposing of VMs in the presence of syntactically focused constituents: since these too are main predicates, and main predication must be associated with PV, no VM can appear between the focused expression and the tensed verb.

Focus in PV is not the only thing that causes VMs to postpose. As mentioned in Chapter 1, the negative particle *nem* appears immediately before the tensed verb in cases of 'sentential negation' and this causes any VM to appear post-verbally, as

shown in (7.17a). Does this mean that *nem* is also a main predicate? It appears not, for the syntactic parallelism between *nem* and narrow focus is not complete. Unlike a focused expression, *nem* may in fact, under certain circumstances, co-occur pre-verbally with an item that can be a VM. Also, while only one narrow focus may appear pre-verbally, as the main predication analysis predicts, *nem* can appear pre-verbally alongside a PV narrow focus.

This may occur in either of two ways, with *nem* either preceding or following the PV item with which it co-occurs. In the latter case, this means that *nem* appears between the PV item and the tensed verb. A PV item that precedes *nem* in this way is necessarily interpreted as a narrow focus. The negative particle in such cases is destressed, and is interpreted as part of the focus frame, even though it appears before the tensed verb. This use of negation is illustrated in (7.17b)[7].

When *nem* precedes a co-occurring PV item, the scope of negation is felt to be different: the reading is one of 'constituent negation' of the expression to the right of *nem*, rather than sentential negation. In this case too the co-occurring PV item must be read as a narrow focus, even if it is a VM. This is as expected: it is in the nature of constituent negation that it is an assertion about an individual expression in the context of a presupposed eventuality—specifically, the assertion that the denotation of that expression does not participate in the specified way in the eventuality in question. This is exemplified in (7.17c,d).

(7.17) a. Kati ′nem mászott fel a fára öt perc alatt.
Kati not climbed up(VM) the tree-on five minute under
'Kati didn't climb up the tree in five minutes.'

b. Kati a ′vadgesztenyefára nem mászott fel öt perc alatt.
Kati the horse-chestnut.tree-on not climbed up(VM) five minute under
'It's the horse-chestnut tree that Kati didn't climb in under five minutes [i.e. she did climb all other trees/things in under five minutes].'

[7]Another reading is possible when a VM precedes *nem*; the so-called 'emphatic' reading which has roughly the impact of 'Indeed I didn't/won't *P*' (see, for example, Piñón 1992). I take this to require a somewhat more complex analysis than the case of simple narrow focus on the VM, and note here simply that it broadly fits into the predicted pattern: a negative eventuality is presupposed and the VM introduces an assertion with regard to it.

c. Kati nem ′felmászott a fára (hanem ′lemászott a
Kati not up(VM)-climbed the tree-on but down(VM)-climbed the
fáról) öt perc alatt.
tree-from five minute under
'Kati didn't climb UP the tree, but DOWN it, in five minutes.'

d. Kati nem a ′vadgesztenyefára mászott fel öt perc alatt.
Kati not the horse-chestnut.tree-on climbed up(VM) five minute under
'It's not the horse-chestnut tree that Kati climbed in under five minutes [but something else].'

As noted in Chapter 1, the behaviour of *nem* has been argued to be incompatible with any 'single position' analysis of PV phenomena. Piñón (1992), for example, makes explicit the nature of the problem, which is widely assumed in more recent work: if foci and *nem* may co-occur before the tensed verb, and in either order, as in (7.17b,c,d), then it cannot be the case that there is a single syntactic position that represents the pre-verbal location of foci, *nem* and VMs, nor could such a position be said to explain the postposing of VMs in the presence of either *nem* or a focus. A common syntactic solution in recent work is to posit two positions for negation in the pre-verbal domain, in the form of two NegP projections, one above an FP projection for foci and one below it (e.g. Koopman & Szabolcsi 2000; É. Kiss 2002); É. Kiss attributes the idea to Olsvay 2000). Generally, the postposing of VMs with negation is derived by some parallel mechanism to that which is used to cause postposing in the presence of focus, such as movement of the verb to the left of any VM, in the manner of Bródy (1990,1995), whenever either FP or the lower NegP is filled (see, for example, Puskas 2000. É. Kiss 2002, 131, on the other hand, gives syntactic arguments against verb-movement to NegP, in line with her analysis of focus).

This apparent problem with negation is an artifact of conventional syntactic approaches and does not arise within the kind of processing-based approach that I assume (while the analysis involving NegPs and FP is neither necessary nor even available). Rather than assuming that VMs, foci and negation target a single syntactic position, my approach is based on interpretively significant relationships between such items and the expression of temporal information—and between each other. As such, whether two items can co-occur in a particular linear configuration depends not on the existence of certain abstract positions, but on the interpretive contribution of each item and whether their combination, in conjunction with any

pertinent elements of procedural syntactic encoding, produces a coherent interpretation.

The fact that negation is able to co-occur with a PV focus therefore does not necessarily preclude the idea that a single meaningful relationship explains the preverbal position of VMs, narrow foci and *nem*. Rather, it is important to consider what the precise contribution of *nem* is and how this relates to the meaningful relationship in question—that is, to main predication. It is clear that negation is not in itself a predicate, in any sense that could make it parallel to the various functions over eventualities that perform main predication. It is therefore not in itself ever a main predicate and it is predictable from this that *nem* does not have precisely the distribution of narrow foci, VMs or main verbs. Its close association with main predication nevertheless follows straightforwardly from common conceptions of what negation is.

One connection between negation and uses of main predication is the involvement of presupposed eventualities. As Horn (1989) discusses at length, a negative proposition in some sense always presupposes the corresponding positive proposition. Horn comes to the conclusion that the relevant notion of 'presupposition' is a pragmatic one, rather than the logical conception of presupposition; a position that is of course consistent with the perspective taken on presupposition throughout the present work (indeed, Horn presents a neo-Gricean account that closely parallels Relevance Theory, in its concentration on the balance between effort and informative reward). This reflects a reasonable supposition about the nature of negative propositions in cognition: it is hard to see how we could conceptualise specific statements about non-existence and/or non-occurrence other than in relation to what we take to exist or occur. It also allows for a coherent treatment of negative propositions in the kind of extensionalised treatment of eventualities that I employ in this thesis: an eventuality bound by negative existential quantification being extensionally simply the empty set, this could only achieve relevance in relation to positive assumptions.

As a result, negation bears a close conceptual parallel to narrow focus, which also exists in the context of a presupposed eventuality. Since negation is treated in my analysis as a purely local operator (see section 7.3.1), the negated predicate, whether in the production of sentential or constituent negation, has a unique status in the propositional form, just as a narrow focus does. The parallel is not always obvious, since sentential negation may involve accommodation of the presupposition, giving the impression of a high degree of contextual 'newness', in contrast to the 'corrective'

reading most commonly thought to be associated with PV foci (however incomplete this characterisation may be, as argued in Chapter 3), in which the presupposed focus frame is very obviously 'given' information. Nevertheless, it is intuitively clear that a dialogue cannot begin with a negative sentence, unless the addressee manifestly holds some relevant assumptions relating to the positive proposition to which this sentence corresponds.

As for the precise semantic contribution of linguistic negation, it is most commonly encountered in semantic representations as an operator, which may perhaps be applied to a variety of semantic objects, but with a certain structurally-defined scope. This allows for a maximally transparent correspondence between linguistic and semantic form, the contribution of a negative particle like *not* or *nem* being regularly represented directly in semantic formulae as the operator $\neg$. There is another significant way of thinking about the contribution of negation, however, that is recognised in certain key parts of the semantic literature: the idea that negation is in itself a mode of predication. This is encapsulated in Montague's (1973) syncategorematic analysis of negation (see also Horn 1989). There is a fairly obvious sense in which these two views coincide: the negation of any element by the application of an operator typically involves the negation of some predicate applied to a variable, and this may just as well be thought of as an act of negative predication. This is particularly clear in neo-Davidsonian representations, in which cases of the 'constituent negation' of an individual-denoting argument or adjunct (as in (7.17c)) are straightforwardly represented—using a single negative operator (rather than requiring the use of $\neq$, for example)—as the negation of a predicate that relates an individual to an eventuality. The distinction between 'constituent negation' and 'sentential negation' therefore involves no difference in the manner of negation, but rather a simple distinction in the kind of predicate that is negated—just as 'identificational focus' versus 'neutral' (topic-comment) interpretation has been shown to reduce to the kind of predicate that performs main predication.

In the epsilon calculus, this view of negation has further significance, since the expression of existence here involves an act of predication. The use of negation in this context was illustrated in passing in (5.12c,d) of Chapter 4, section 5.3.2; parallel examples are given in (7.18).

(7.18) a. $\neg hungry'(\varepsilon, x\ [cat'(x)])$
b. $\neg cat'(\varepsilon, x\ [cat'(x)])$
c. $\neg \exists x.\ cat'(x)$

(7.18a) states that 'The/A cat is not hungry'. That is, it merely denies that a presupposed logical subject has a certain property; the x selected with respect to the set of cats not being found within the set of hungry things. (7.18b), on the other hand, is equivalent to (7.18c). If the x selected with respect to the set of cats is not found in the set of cats, then this x must be a completely arbitrary object and the set of cats must be empty.

Applying this observation to the mixture of neo-Davidsonian decomposition and the epsilon calculus that I have proposed, it is clear that main predication can be negative as well as positive. That is, just as the application of a positive main predicate asserts the existence of an eventuality, a main predicate preceded by the negative operator asserts the non-existence of an eventuality with respect to the predicate in question. This is illustrated throughout section 7.3.1.

The epsilon- and eventuality-based form of representation thus has the potential to encapsulate the attractive features of both major views on negation. The operator $\neg$ exists in the representation as an explicit element corresponding to the linguistic negative particle, while the idea that negation is a mode of predication has clear significance in terms of the idea of negative main predication. When the word order facts in (7.17) are considered in the light of this idea, they receive an explanation of striking simplicity and generality—especially in comparison to the *ad hoc* stipulation of NegP projections in the conventional syntactic account[8].

7.3.1 The homogeneity of negation

The essence of this explanation is that *nem* contributes a negative operator whose effect is always strictly local: it negates just the predicate that immediately follows it. In other words, *nem* corresponds to a strictly narrow scope operator. This proposal contradicts common assumptions about how negation must work, since sentential negation is generally taken to involve wide (at least VP-)scope application of the negative operator and only constituent negation is thought of as involving narrow operator scope.

[8] One notable alternative to more stipulative syntactic approaches is Payne & Chisarik's (2000) Optimality Theory account. While this is some ways more insightful, it shares the problems of OT in general: in many ways it only pushes back the stipulative aspect of the analysis one stage. A suitable series of violable constraints may produce the right word order effects, but one would like to know where these constraints come from and what status they really have. While OT constraints are hypothesised to be innate, they often have apparent functional bases, as Haspelmath (1999) points out—which leads back to more concrete issues like the cognitive impact of linear order and certain kinds of phonological phrasing in different contexts.

This is typically assumed to be consistent with a general tendency for scope to be expressed in left-to-right terms in languages like Hungarian (hence the claim that Hungarian 'wears its LF on its sleeve'). The data in (7.17) are often dealt with in these terms, under the assumption that focus is also an operator, in some general sense. It is then possible to say that the lower operator has scope over all the material to its right, while the higher operator has scope over the lower one. This, it is assumed, is what leads to the sense of narrow-scope negation when *nem* precedes and, by assumption, c-commands a focused expression—while negation has wide scope, but comes within the focus frame, when the precedence/command relation is reversed (É. Kiss 1987, 54, citing Hunyadi 1981).

I will show, however, that narrow scope application of negation to a main predicate, in precisely the way suggested by the surface syntactic evidence, leads, via inference, to an interpretation equivalent to sentential negation. This creates a more parsimonious explanation of negation in Hungarian than that allowed for by the assumption of varying scope. If the semantic scope of the negative operator is consistently narrow, there is no need to invoke an independent explanation (that is, in terms of syntactic mechanisms) to account for the narrow scope of *nem* when it appears before a focused expression. In the kind of account outlined above, this is at least explained in terms of a fairly general principle claimed about the syntax of Hungarian, but the basis of the crucial assumption that focus should be treated as an operator-like object has been shown, in Chapter 3, to be unsustainable. Furthermore, as will be shown below, it is not necessary to specify the possible syntactic positions of *nem* when the effects of a consistently narrow scope operator are considered in the context of different kinds of predicate. This removes the need for essentially *ad hoc* NegP projections.

In the rest of this section, I discuss each of the principal word order possibilities involving *nem*, illustrating how each follows from the idea of pre-tense main predication developed in Chapter 5, in conjunction with the maximally simple assumption that the semantic contribution of *nem* is a consistently local operator over predicates of eventualities.

'Constituent negation'

The narrow scope, 'constituent negation' reading of the order *nem* > focus > V falls out naturally in my approach as an example of negative main predication involving a participant-denoting expression. This is exemplified in (7.19) (once again I use a

sentence containing *fog* and an infinitival main verb to clarify the encoding of main predication).

(7.19) Ferenc nem Marit fogja látni.
Ferenc not Mari-ACC will see
'It's not Mari that Ferenc will see.'

The interpretation of (7.19) proceeds much as the interpretation of any sentence containing a narrow focus, as discussed in detail in Chapter 5. The accusative NP *Marit* is recognised, by virtue of its pre-tense position and the destressing of subsequent material, to be the main predicate. This is just the same procedure as in a positive sentence containing narrow focus: the assertion of a non-verbal predicate as the main predicate causes a search through the context for a presupposed, 'focus frame' eventuality that can act as the logical subject of this act of predication, such that a full propositional form is created thereby. The only difference is that in the case of (7.19) the presupposed, 'focus frame' eventuality of Ferenc seeing someone is asserted to *not* exist within the set of eventualities with Mari as Object. This is a truth-conditional assertion with all the necessary elements of a proposition and thus main predication is achieved by means of this negative predication just as in the positive cases already encountered. It is represented as in (7.20a).

(7.20) a. $\neg\theta_{\mathrm{ACC}}((\varepsilon, e\,[f(e, \mathbf{T}_i)\,\&\,see'(e)\,\&\,\theta_{\mathrm{NOM}}(e,ferenc')\,\&\,\theta_{\mathrm{ACC}}(e, \mathbf{U})]),\ mari')$
b. $\neg\theta_{\mathrm{ACC}}((\varepsilon, e\,[f(e, \mathbf{T}_i)\,\&\,see'(e)\,\&\,\theta_{\mathrm{NOM}}(e,ferenc')\,\&\,\theta_{\mathrm{ACC}}(e,mari')]),\ mari')$

As usual, the metavariable **U** can be substituted by $mari'$, yielding (7.20b), which denies the existence of any eventuality of Ferenc seeing Mari[9]. It is the intermediate representation in (7.20a) that makes the word order in (7.19) relevant, however. Were the intention simply to deny the existence of such an eventuality, a 'neutral' word order could be employed (see below), without putting the addressee to the effort of seeking a focus frame that would make the main predicatehood of $\theta_{\mathrm{ACC}}(e,mari')$ relevant. The cognitive effects of (7.19) are therefore signalled to be based in the presupposition that Ferenc will see someone and the fact that this will not be Mari.

[9]Once again it must be emphasised that all representations are used in context and therefore only relevant eventualities come into question. The representation in (7.20b) need not be deemed inappropriate if future eventualities that are not relevant in the current context include Ferenc seeing Mari.

Note that the combination of the epsilon calculus and inferential reasoning delivers the right truth-conditions here: the eventuality of Ferenc seeing someone at $\mathbf{T}_i$ is not asserted not to exist; it simply does not exist in the set of eventualities with Mari as Object. Indeed, establishing the relevance of (7.19) necessarily involves the recovery of an eventuality of this kind, thus leading to the sense that this is strictly presupposed information. The survival of this 'existential presupposition' under negation has been taken to be evidence that constructions like Hungarian PV focus involve a 'semantic presupposition' (e.g. Bende-Farkas 2002), but the present analysis shows that the interpretation in question follows from general processes of inference over a particular kind of predication. Furthermore, no auxiliary assumptions about the interaction of the scope of negation with the 'scope of focus' are required: the correct interpretation follows from a single act of predication.

The fact that *nem* can precede a narrow focus in PV is therefore straightforwardly explained as a special case of main predication. The operator introduced by the occurrence of *nem* does not need to have its scope determined by syntactic means; it simply converts an act of predication from a positive one into a negative one. It is less immediately obvious how this can be the basis of an explanation of how *nem* can intervene between a PV focus and the tensed verb. This requires an extra inferential step that relates to what it means for an eventuality to be negated. Discussion of the order focus > *nem* > V is therefore delayed until simpler cases of sentential negation have been accounted for.

Simple sentential negation

Sentential negation is signalled by the appearance of *nem* immediately before the tensed verb. Recall that this effectively means that *nem* precedes tense, rather than the verb as such, as is clear when the tensed verb is the purely temporal auxiliary *fog*, so that an item that precedes a finite main verb can be interpreted as preceding tense whenever a linear relationship to tense is significant. This is important for my analysis of sentential negation, given that I make the assumption that the negative operator introduced by *nem* always operates locally over the predicate to its right. Putting this assumption together with the data, it seems that a sentence containing what is thought of as sentential negation in fact involves the negation of the temporal predicate that is contributed by tense, as is clear in a future time sentence such as (7.21).

(7.21) Ferenc nem fogja látni Marit
Ferenc not will see-INF Mari-ACC
'Ferenc will not see Mari.'

Unlike in (7.19), there is nothing here in between *nem* and the tense-carrying verb that could be construed as the main predicate; no narrowly focused constituent to be interpreted as a locally negated expression that should be interpreted in the context of a presupposed focus frame. Note that, unlike in the case of a positive sentence, even the main verb would necessarily be interpreted as a narrow focus were it to precede the auxiliary in this case, being locally negated. Given the word order in (7.21), what remains as the negated main predicate is tense itself. The propositional form that results is therefore as in (7.22).

(7.22) $\neg f((\varepsilon, e\ [f(e, \mathbf{T}_i)\ \&\ see'(e)\ \&\ \theta_{\mathrm{NOM}}(e,ferenc')\ \&\ \theta_{\mathrm{ACC}}(e,mari')]), \mathbf{T}_i)$

In effect, (7.22) says that a selected eventuality of Ferenc seeing Mari does not exist, since it is not found in the set of eventualities with the temporal anchor $\mathbf{T}_i$ (which is restricted to future times by the separate temporal logic system). This amounts to a simple negation of the existence of the eventuality, because of the complex nature of the semantic contribution of a tense morpheme.

In section 7.2.2, positive narrow focus on tense was shown to produce not contrast between different time frames, but a simple assertion of the existence of a presupposed eventuality. This follows if specifications of how a time referent relates to other times are determined by a separate logical system and so cannot possibly perform main predication[10]. The part of the semantic contribution of tense that can perform main predication is a function linking the eventuality to a time that is not specified with respect to a time frame by this function. This means that focus on tense can only assert the existence of the eventuality by virtue of its having a time of occurrence. In section 7.2.2 it was argued that this assertion of existence leads to the 'existential/experiential' reading conveyed by the EC.

[10]Again, the level at which meanings are lexicalised makes a difference: explicit time adverbials can be contrastively focused. The precise content of these adverbials and how they form links between different logical systems is a matter for future research; it is not, however, unreasonable to speculate that some of these, at least, may involve some form of relation between sub-eventualities, rather than between time referents as such. In any case, there is a clear intuitive difference between the way in which tense introduces and organises temporal information and the way this is done by lexical temporal expressions, which always accompany tense in any case, and this intuition is captured by the present analysis.

It follows that applying the negative operator to tense, in the absence of any other main predicate, will produce an assertion of the non-existence of the eventuality, without producing a sense of contrast with regard to any of its semantic content. That sentential negation should be the negative equivalent of the EC may seem a surprising result, given that the latter is thought of as a highly marked construction, while sentential negation seems intuitively quite basic. This impression, however, is explicable simply by reference to the contexts in which the meaning associated with each would be relevant. Both constructions work in relation to presuppositions of the opposite polarity—the EC achieves relevance in relation to the assumption that the eventuality in question has not happened (perhaps because it cannot), while sentential negation must relate to an assumption that a corresponding positive eventuality is at least a possibility, as noted above. The former is clearly a much more restricted kind of context; one may have any number of general assumptions that imply that a variety of manifest eventualities are more or less possible, but the assumption that some particular eventuality will not happen or has not happened is much more specific. This is inevitably the case, given the reasoning outlined above that negative propositions are effectively parasitic on positive ones. Note that this is reflected in the form of representation developed in Chapter 5: the existence of a temporal anchor is a default presupposition to any eventuality. At a technical level, then, a tense-negating negative sentence always has the presupposition required to give it relevance, while the negative presupposition required by the EC is the marked case.

The analysis of sentential negation as narrow scope negation of tense accounts for the PV-related position of *nem* on this reading. The idea that sentential negation must be strictly pre-tense for this reason in turn predicts the postposing of main verbs (as in (7.21)) when 'sentential' *nem* precedes an auxiliary like *fog*, and also the postposing of VMs, given the analysis that they have received in the previous chapter. To illustrate, consider (7.23), the negative sentence corresponding to (6.11).

(7.23) A háziasszony nem olvasztotta folyékonnyá a vajat.
the housewife not melted fluid-to the butter-ACC
'The housewife didn't melt the butter to (a) fluid (state).'

The basic representation of this would be as in (7.24) (cf. (6.17d)).

(7.24) $\neg f((\varepsilon, e\ [\textsc{trans}(e)\ \&\ f(e, \mathbf{T}_i)\ \&\ \textsc{p-sub}(e, (\varepsilon, e_1\ [\mathit{melt}'(e_1)\ \&$
$\theta_{\textsc{nom}}(e_1, \mathit{the\text{-}hw}')\ \theta_{\textsc{acc}}(e_1, \mathit{the\text{-}butter}')])))\ \&\ \textsc{r-sub}(e, (\varepsilon, e_2\ [\mathit{fluid}'(e_2)\ \&$
$\mathit{Arg}_1(e_2, \mathit{the\text{-}butter}')]))]), \mathbf{T}_i)$

As outlined in Chapter 6 in relation to VMs in the presence of PV foci, the post-verbal appearance of the resultative VM is forced in (7.23) by the independent morphological constraint of the inseparability of the finite main verb stem and tense morphology, but is in any case in line with the overall explanation of VM behaviour, since the VM+V complex is part of a presupposition and therefore accessed as a unit. There is therefore no danger of the semantic contribution of the verb alone determining the structure of the whole eventuality.

The close link between negation and tense has been noticed before. For example, Puskas (2000:321) proposes that the pre-verbal position of sentential *nem* is attributable to the head of NegP requiring "to be construed with a tense feature", following work by Zanuttini (1996) on Italian. As it stands, this represents little more than a stipulation of adjacency to the tensed verb within a particular formalism. The present analysis, with its basis in interpretive procedures, provides a more genuinely explanatory foundation to the observations modelled syntactically in this way. Furthermore, it does so by means of exactly the same procedures as those that are responsible for constituent negation.

Note that the least marked main predicate differs in positive and negative sentences, but is in both cases one of the essential elements of a full proposition. In positive sentences, a VM or VM-less main verb is able to create existential quantification without producing a narrow focus reading, since these expressions introduce significant kinds of semantic structure, thereby linking a topical entity to other entities and asserting the existence of an eventuality containing the topical entity in a relevant fashion. In a negative sentence, on the other hand, the fact that the verbal or VM predicate has specific semantic content forces it to take on a constituent negation reading in the context of the presupposed eventuality that accompanies negation for independent pragmatic reasons.

Focus > *nem* > *V*

Above, I argue two crucial points in relation to the interpretation of *nem*: that its semantic contribution is simply an operator that applies locally to an act of predication and that the production of apparent wider scope negation involves inferences over the negation of temporal information. Note that there is nothing in

this analysis of *nem* that links it necessarily to the main predicate. At a semantic level, there is nothing to prevent negation from appearing within the logical subject of main predication. However, pragmatic considerations demand that any such act of negation would have to be of an unmarked kind, corresponding to an apparently wide scope reading, since constituent negation can otherwise only achieve relevance in relation to a presupposed eventuality; that is, by assuming that the negated expression is a narrow focus. The current analysis therefore correctly predicts that negation is typically only found within a focus frame when it applies to the temporal predicate contributed by tense. This corresponds to the word order focus > *nem* > V, with *nem* unstressed, as part of the focus frame.

The appearance of *nem* before the tense-carrying verb does not block the signalling of main predication, since *nem* does not itself contribute a predicate, but rather an operator that effectively changes the tense predicate from a positive predicate to a negative one. This means that [*nem*+tense] is just a kind of temporal predicate, so that whatever precedes this complex can be considered to precede tense for the purposes of signalling main predication. Thus, the incremental interpretation of (7.25a), for example, will produce the representation in (7.25b), which by now-familiar steps of substitution and inference is equivalent to an existential proposition.

(7.25) a. FERENC nem fogja látni Marit.
Ferenc not will see-INF Mari-ACC
'It's Ferenc who won't see Mari.'

b. $\theta_{\mathrm{NOM}}((\varepsilon, e\,[\neg f(e, \mathbf{T}_i)\,\&\,see'(e)\,\&\,\theta_{\mathrm{ACC}}(e, mari')\,\&\,\theta_{\mathrm{NOM}}(e, \mathbf{U})]), ferenc')$

Because of the negation of the temporal predicate within the epsilon term (i.e. within the logical subject of main predication), (7.25b) asserts the existence, in the set of events with Ferenc as Subject, of an event that is characterised by the presuppositionthat it does *not* to obtain at $\mathbf{T}_i$ (a time specified elsewhere to be a relevant future time). This almost self-contradictory assertion can be made relevant only via certain inferential steps. First, it is reasonable to assume that a non-occurring eventuality can only be conceptualised in contrast to a related eventuality that does occur—otherwise all non-occurring eventualities would be the same, being extensionally the empty set. Consequently, the assertion that an event does not occur with respect to some particular individual in a certain participant role implicates that such an event does occur with respect to other individuals in that role. This

is why (7.25b) receives the interpretation that Ferenc is contextually unique in not seeing Mari.

This pragmatic analysis correctly predicts a number of facts that are normally taken to require independent explanation by special syntactic mechanisms. One of these facts is that the order VM > *nem* > tense is only possible when the VM is to be given a focus reading . Despite the fact, as argued above, that the complex [*nem*+tense] is equivalent to tense alone for the purposes of main predication, a VM appearing before *nem* cannot produce a topic-comment reading as it normally can when it is the main predicate. This is once again due to the pragmatics of negating tense. Recall that applying a main predicate to an event whose presupposed temporal anchor point is negated is equivalent to asserting the existence of a non-occurring event. As discussed in relation to (7.25b), this can be made relevant in relation to a focus by the implicature that a parallel event does obtain at the anchor time with regard to contextual alternatives to the entity in focus. There is no similar way to make sense of the presupposition that an event does not occur within a topic-comment sentence, the very purpose of which is to newly ascribe a property to a presupposed entity. For purely pragmatic reasons, ascribing the *lack* of some property to an entity can only be relevant in a contrastive context, meaning that more than just the topic and the temporal anchor must be presupposed. This in turn means that whatever appears to the left of [*nem*+tense] will acquire a focus reading.

Why nem is pre-verbal

In addition to explaining the interaction of *nem* PV elements, the analysis developed in this section also accounts without further stipulation for the general lack of post-verbal instances of *nem*. As mentioned above, there is no formal reason why predicates other than the temporal anchor should not be negated within a 'focus frame' logical subject. That is, nothing in the technicalities of my approach rules out the post-verbal appearance of *nem*. Nevertheless, this is generally accepted to be ungrammatical, as (7.26) illustrates.

(7.26) *János megette nem az almát.
János VM.ate not the apple.ACC

Far from being a gap in the analysis, this represents the correct division of labour among different parts of the process of interpretation. Those applications of *nem*

that prove impossible, as in (7.26), are ruled out by pragmatic considerations, making it is unnecessary to complicate the grammar with any further machinery to this end.

Just as a negated eventuality (in the form of an eventuality with a negated temporal anchor) is only made relevant by relation to an eventuality that is assumed to obtain, so the non-participation of a particular entity in a given eventuality can only be made relevant in terms of a contrast with at least one other entity that does participate in the relevant way. Otherwise, the list of entities that do not participate in a given way in a given eventuality is in principle infinite and irrelevant. For example, the information that the apple is not the Object of the eating event in (7.26) could only be taken at the pragmatic level to signal the relevance of something else that does fill this role. But this reading requires the rest of the sentence to be the background to this contrast; it must be a focus frame, with the negated constituent in focus (that is, the main predicate). This is incompatible with the word order in (7.26), which is that of a 'neutral', topic-comment sentence; by definition, this cannot contain a narrow focus. Similarly, a focus frame itself cannot contain an expression that must be taken to be a narrow focus. It follows that non-temporal predicates cannot in general be negated following the main predicate and it follows in turn from this that negation does not surface to the right of the tensed verb. This does not need to be stipulated by grammatical mechanisms such as the proposal of NegPs, nor does *nem* have to be considered anything other than a local operator over predicates.

The argument in favour of the present analysis is in this respect principally one based on Occam's Razor, inferential pragmatic reasoning being independently necessary in any model of human linguistic abilities. There is, however, also some empirical evidence that supports the view that post-verbal negation is ruled out on pragmatic grounds only—albeit evidence from sentences whose acceptability is distinctly marginal. This comes from the phenomenon of 'double focus', whereby a sentence contains two contrastive foci, the second of which appears post-verbally, indicated purely by pitch accent. A full account of these pragmatically highly marked sentences is beyond the scope of this thesis, but their existence implies that post-verbal constituent negation should be possible in a similarly marked sense, in the presence of another, pre-tense focus.

This expectation is borne out. According to the judgments of at least some native speakers, 'double focus' sentences show that post-verbal negation is not in fact impossible following the tensed verb, when the main predicate is a narrow focus.

However, the extra complication of adding the semantics and pragmatics of negation to an already highly marked construction means that examples are restricted to very unusual contexts and therefore elicit very marginal acceptability judgments. For example, (7.27) may, like its English translation, appear quite unacceptable at first sight, but, according to an informant, is possible in a special context such as the following.

The results of the annual chess tournament are being discussed. Mari is by far the strongest player and beat most of the people she played. All but one of the other matches were drawn. This means that only one player was beaten by an opponent other than Mari. If the identity of this person is questioned, (7.27) might be uttered.

(7.27) Jánost verte meg nem Mari.
János-ACC beat VM not Mari
'It's János who was beaten not by Mari.'

The marginal possibility of such examples supports the approach taken here: rather than stipulating the positions of negation by syntactic means, it is more revealing to ask in which positions negation can contribute to a coherent meaning in a given sentence. In addition to explaining the positions in which *nem* does and does not normally occur, on the basis of a very simple set of assumptions, this approach even predicts the circumstances under which negation may occasionally surface in otherwise blocked positions[11].

7.3.2 Negation and the interpretive relevance of lexicalisation

As a final thought, it is worth noting that the facts from negation lend support to the analysis of resultative VMs in section 6.2, in terms of the relevance of the level at which aspectual information is lexicalised and, as such, they provide a useful illustration of the value of the basic theoretical points made in Chapter 2. A sentence like (7.23), repeated here as (7.28), is ambiguous between a reading in which the whole activity is not even initiated (e.g. 'The housewife didn't melt the

[11] É. Kiss (2002:133) (citing Olsvay 2000) also give examples like (7.27), with negation in the post-verbal domain, but her point is based on their non-existence where one theoretical approach would predict that they should be possible. However, she notably hedges her grammaticality judgement here—"ungrammatical, or very marginal"—and marks her examples in such a way that a cline in (un)acceptability is indicated. This is more consistent with an analysis in which the inaccessibility of the necessary context is responsible for the intuitive judgement than with one based on strict technical constraints.

butter to fluid. It was already rancid, so she just threw it out') and one in which the process part is initiated but the result state is not achieved (e.g. 'The housewife didn't melt the butter to fluid; she just made it soft enough to spread').

(7.28) A háziasszony nem olvasztotta folyékonnyá a vajat.
the housewife not melted fluid-to the butter-ACC
'The housewife didn't melt the butter to (a) fluid (state).'

This ambiguity is compatible with the representation in (7.24)—in a more fully worked out account, the different presuppositions to which the different readings relate could differ in their internal structure, thanks to the possibility of manipulating the separate sub-eventuality predicates.

As Tóth (2002) points out, this ambiguity contrasts with the case of an accomplishment that is lexicalised in a VM-less verb. Thus, (7.29) is not ambiguous; unlike its English counterpart, it can only mean that János did not begin to eat an apple, not that he began but failed to finish one.

(7.29) János nem evett egy almát.
János not ate an apple-ACC
'János did not eat an apple (at all).'
not: 'János did not finish eating an apple.'

This is accounted for by the kind of semantic representation proposed, in which lexicalisation has an influence on the representation of meaning at cognitively significant levels. The appropriate relation between form and meaning is thus captured without the need to complicate the syntax with machinery that has only string-vacuous effects (as Tóth 2002 is forced to by the assumptions of her conventional syntactic framework). Nor does this involve any spurious redefinition of a structural representation as a semantic one. As argued in Chapter 2, investigating what linguistic forms actually encode cannot be simply a matter of defining truth-conditions and matching them to representations of linguistic structure (which will inevitably get more and more abstract as interpretation is considered in more detail). Only consideration of how the semantics of individual forms interact with each other and with context can tell us what kinds of meaning representation are in fact introduced at different levels of processing.

Chapter 8

Summary and Conclusions

The principal aims of this thesis are twofold. First, it is intended to provide an explanatory account of how and why certain phenomena interact in and around the immediately pre-verbal position in Hungarian: specifically why syntactically focused constituents, negation and the diverse class of 'verbal modifiers' (VMs) are all associated with this position and why they are mutually exclusive to the extent that they are. In Chapter 2, I argue that a truly explanatory account must abandon the conventional methodology of generative linguistics in favour of a dynamic, inference-based approach to the interpretation of linguistic structure. This is contrary to the currently prevailing notion that phenomena like Hungarian 'focus position' can only be accurately described by reference to specialised syntactic positions, given that the kind of dynamic approach that I advocate does not employ abstract syntactic positions at all. The second main aim of the thesis is therefore to demonstrate the viability and explanatory potential of this approach in tackling putatively 'discourse configurational' phenomena.

The primary metatheoretical concern that motivates the argumentation of Chapter 2 is the question of how the encoded content of linguistic structure can be distinguished from other factors that influence interpretation. It is argued, with reference to work in Relevance Theory and Dynamic Syntax, that this cannot be done accurately on the basis of conventional assumptions concerning the relationship between syntax and semantics. The Montagovian belief that the truth-conditions associated with natural language sentences are to be derived compositionally from only lexical items and their means of combination in logical syntax is misleading, given the necessary input of context-dependent inferential pragmatic processes in the creation of propositional forms. Furthermore, the static nature of the representations that

are assumed to feed the process of interpretation precludes the involvement of an important potential source of information that is an inevitable part of this process: the incremental presentation of linguistic material and the multiple and varied opportunities for inference to affect interpretation that result from this. I argue that the only way to separate the inferred part of observed interpretations from what is encoded is therefore to adopt a dynamic, parsing-based view on grammar, in combination with a cognitively well-grounded theory of pragmatics, for which purpose I turn to Relevance Theory.

Once such a perspective is adopted, the postulation of abstract, static representations of syntactic structure becomes otiose, as structural information can be viewed in terms of procedures for building semantic representations. In this respect, my approach is close to that of Dynamic Syntax. I go beyond existing work in Dynamic Syntax in following up the other major implication of the general dynamic approach, the possibility of highly underspecified encoded meaning—a move necessitated by the nature of the Hungarian data.

Chapter 3 considers the issue of encoded versus inferred meaning with particular reference to the definition of 'focus' that is associated with syntactically focused expressions in Hungarian. It is shown that any attempt to define the relevant notion of focus *a priori* in logical terms and to encode this as a grammatical primitive is bound to encounter empirical problems, since the interpretation of syntactically focused expressions is demonstrably influenced by context. In particular, I counter the widely-held belief that Hungarian syntax encodes a type of exhaustive focus, different in kind to the focus associated with prosodic stress in English sentences of unmarked word order, with evidence that the degree of exhaustivity associated with each kind of expression of focus is dependent on context in ways explained by inferential pragmatic theory. The typical association of exhaustivity with Hungarian pre-verbal focus is attributable to the 'narrow' nature of focus in this case, which in turn relates to the relationship between the focused expression and the presupposition of a particular eventuality as part of the context constructed for the interpretation of the focus. This is explained by the proposals of Chapter 5, in which the position of focused expressions, preceding the tensed verb, is associated with a single act of predication that must create a full propositional form.

This association of the pre-verbal position with a single act of predication also explains a number of quantificational phenomena, as shown in Chapter 4. It follows from this analysis that the lexicalisation of a predicate that is logically independent from the assertion of other material in the proposition is a precondition for

appearance in the 'focus position'. After showing, *contra* Szabolcsi (1997b), that quantifiers in the immediately pre-verbal position are syntactically and interpretively focused, the proposed constraint on the predication in the 'focus position' is used to explain the fact that monolexical quantifiers that have a proportional interpretation, in terms of generalised quantifier theory, are unable to appear there under any circumstances. In the basic set-theoretic representation of proportional quantifiers, the contribution of the quantifier is not identifiable as an independent property, but is expressed as a relation between two other predicates. As result, the contribution of the quantifier cannot be asserted as a predicate over an eventuality in the way required for interpretation in the pre-verbal position.

This analysis correctly predicts that a lexically complex proportional quantifier may appear in the pre-verbal position, if one of its constituent lexemes contributes the predicate that is taken to be 'in focus'. A greater level of empirical precision is therefore achieved than in Szabolcsi's account, which is vague on such cases. In combination with Szabolcsi's monotonicity-based explanation of the pre-focus 'Quantifier Position', which I argue to have a natural connection to information-structural meaning, the full pattern of constraints on quantifier distribution across two pre-verbal positions is thereby accounted for, using inherently dynamic, procedural notions.

Chapter 5 discusses the motivation behind the analysis of the pre-verbal position as the location of a single predicate with a special status and introduces a system of representation that can be used in a dynamic way to capture the interpretive processes involved. A crucial part of this is the re-analysis of the basic Hungarian data that pays particular attention to the behaviour of a VM-less main verb when it appears in its infinitival form, in the presence of a tensed auxiliary. The main verb infinitive appears immediately to the left of the auxiliary in a sentence with a 'topic-comment' reading, but is postposed when a focused expression or sentential negation appear there. While this is dealt with in other analyses by the non-explanatory designation of the infinitive as a type of VM, I take it to show that the true position of foci is pre-tense, not pre-main-verb. A finite main verb stem cannot postpose for morphological reasons, so the complex [verb+tense] can be treated as tense for the purposes of syntactic focus (and for the interpretation of other expressions that occupy the relevant pre-verbal position). This allows for an analysis in which the expression that precedes tense is afforded a special status and in which the main verb is assumed not to be recognised as 'the pre-tense expression'

when a focused constituent or VM precedes it, just as it is it seen literally to be outside the pre-tense position when a focus or VM precedes a tensed auxiliary.

This parallelism in focus and main verb position—an instance of a common cross-linguistic pattern of the position of focus relating to that of the tensed verb—is consistent with the traditional view of information structure as being related to the notion of predication. The particular predicational quality that is common to main verbs and narrow foci is the ability to carry out what I term 'main predication': the ability to create a proposition in one act of predication. I propose that the status of main predicate is what is in fact encoded in the pre-tense position in Hungarian. In the case of VM-less main verbs the ability to perform this function is due to the semantic structure that they introduce, including argument structure, which I represent as the introduction of theta-bound metavariables. The ability of a verb's semantic contribution to create a proposition is thus analogous to the lexical verb's ability to create a full sentence on its own in a language like Hungarian. A narrow focus, on the other hand, creates a proposition via inference. Being signalled to be the main predicate by pre-tense appearance causes a non-verbal predicate, such as a theta-bound individual, to be interpreted as the creator of a proposition. By inference, the other material necessary for a propositional meaning must therefore be contextually accessible at the point at which the focused expression is asserted. This explains the presupposition of the rest of the sentence when a non-verbal (and non-VM) item is encountered in the pre-tense position, which in turn explains the narrow focus reading.

Since a temporal anchor is an essential part of any full proposition, the notion of main predication is naturally connected to tense, giving a partial explanation of why the pre-tense position signals this procedure—temporal information must be processed along with an item that is bound to create a proposition, at the latest. I adopt in my representations a version of the analysis of tense suggested by Kempson *et al.* (2000) for Dynamic Syntax, whereby only the existence of a temporal anchor is contributed to the main propositional formula by tense, all the details of relative times being dealt with in a separate temporal logic system. This does not significantly affect the representation of main predication itself, but is shown in Chapter 7 to account for the impossibility of using the pre-tense position to produce a focus reading that contrasts the value of one tense with another. Hungarian can therefore be seen as providing support for this analysis of tense.

The intrinsically dynamic notion of main predication is represented using the insight of Davidson (1967) that the creation of propositional meaning can be rendered as

the creation of existential quantification over an eventuality. To this end, a form of neo-Davidsonian representation (i.e. involving semantic formulae in which verbs and their arguments are represented as as conjoined functions over an eventuality variable, as in Parsons 1990) are employed. Since predicates from the natural language string must perform main predication, some means is required whereby such predicates can be shown to create existential quantification. This is provided by the epsilon calculus of Hilbert & Bernays (1939) (as interpreted by Egli & von Heusinger 1995).

The proposed system of representation therefore comprises a novel application of the epsilon operator to eventuality variables. This is appropriate, since there is a certain natural sense in which material within an epsilon term is some sense presupposed, while material predicated of an epsilon term is an assertion, as is suggested by Egli & von Heusinger's (1995) association of material within an epsilon term with 'theme' and material predicated of it as 'rheme'. The inclusion of metavariables within the epsilon term when a main verb is main predicate nevertheless allows for further assertions to be made, since the substituend for the metavariable may be asserted. As a result, the unmarked, 'topic-comment' reading of sentences with the verb as main predicate is predicted. At the same time, the possibility of a narrowly focused reading of the verb also follows without the postulation of any special operations, since the context of utterance (which may include explicit contrastive material) can determine that the rest of the sentence is to be treated as presupposed.

The semantic underpinnings of the syntactic parallelism of narrow foci and main verbs being thus established, Chapters 6 and 7 show how the analysis accounts also for VM behaviour and for the interaction of the negative particle *nem* with the pre-tense position. The fact only one predicative item can occupy the pre-tense position (be this before a tensed auxiliary or before an unbreakable [verb+tense] complex) explains without further stipulation why VMs cannot remain in the pre-verbal position in the presence of syntactic focus—quite simply, the presence of a pre-tense VM will prevent any other item from being interpreted as a narrow focus. This brings up the opposite question, however: how and why do VMs appear pre-tense in 'neutral', topic-comment sentences?

The answer to this question lies in the unique status of VMs as both partially independent syntactic and semantic entities and elements that enter into complex predicates. The fact that VMs can be main predicates is down to their degree of independent semantic contribution: like verbs, they introduce certain crucial elements of semantic detail that effectively give structure to the eventuality. This

may operate at a compositional, lexical level, or may involve adapting the internal semantic structure of any verbal predicate that is subsequently asserted—hence the frequent aspectual significance of VMs. The fact that a VM, rather than the verb that combines with it, must be the main predicates in a neutral sentence is determined by the fact that the semantic structure that is introduced by the VM cannot be asserted if the structure of the eventuality has already been established by the verb. Verbs have the ability to make different contributions to propositions, according to whether it is an independent contribution or one made under the influence of a VM. This may correspond to the existence of two lexical entries, or may be a matter of the level at which the verbal meaning is contributed, as in the case of a verb following a resultative VM, which predicates over a sub-eventuality, rather than the main eventuality variable. A VM, on the other hand, can only make one contribution, and therefore always affects the interpretation of the verb. For this reason, a VM cannot be asserted following a verbal main predicate, as this would involve destroying the information supplied by the verb in the course of a successful parse. This would contravene the fundamental requirement for grammatical derivations to be monotonic.

It follows that a non-presupposed reading of the VM is impossible unless it precedes the verb in the parse and therefore it is the structure of the VM rather than that of the verb that must create main predication for a pragmatically unmarked reading to be produced. Even in an utterance in which the VM is presupposed, the assertion of the bare verb in advance of the VM could create 'garden path'-like effects and take up effort re-parsing the sentence. It is therefore explicable that syntactic focusing of verbs from within VM+V combinations is dispreferred, or ruled out for some speakers, in favour of a prosodic strategy which, though marked, allows the VM to remain pre-verbal.

The different classes of VM include many areas of complex and little-researched data, making a comprehensive analysis too great a task for one work such as this. Nevertheless, there are indications that most of the major classes of VM have precisely the quality of structuring the eventuality in some way that requires adaptations to the structure of the verb's semantics. In a few cases, such as some adverbs and locatives, there are indications that the items in question may effectively be narrow foci rather than VMs as such—or indeed provide some bridge between the two. Clearly, there is room for much future research here, both empirical and theoretical.

The few exceptions to the non-assertability of post-verbal VMs are predictable on the basis of the main predication, as discussed in Chapter 7. Those apparent VMs that appear post-verbally in non-presupposed contexts and bearing stress are just those VM expressions that have the ability to be read in a way that does not involve creating a complex predicate with the verb. 'Literal' directional VMs are one such case; these are permitted as asserted post-verbal items only on an adverbial reading. The effect of this reading is comparable to the effect of adverbs like *downwards* and *upwards* in English: they imply an action in progress. This explains why the order V>VM, with stress on the VM and other post-verbal constituents is thought of as a progressive construction in Hungarian. There is therefore no need for *ad hoc* aspectual operators, as previous analyses of this construction have tended to require. This is a particularly desirable result since the postposing of another kind of VM, bare accusative nominals, in this kind of context produces a perfective reading, as noted by Kiefer (1994). This follows from the fact that the verb, as main predicate, demands a full internal argument to follow it, rather than a predicate-denoting nominal, as a bare nominal usually is. Being forced to act as a referential argument, the contribution of the bare nominal must acquire some quantification from the extra-linguistic context. This boundedness of the internal argument provides a limit on the eventuality, by well-documented principles of aspectual interpretation (Tenny 1994), producing a telic reading. The main predicate analysis thus predicts not only the aspectual reading of such sentences but also the interpretive constraint noted by Kiefer (1994) that the verb+nominal combination such sentences must cause a certain kind of change of state: this change of state allows for the conceptualisation of 'a sufficient quantity to achieve P', which is what enables the bare nominal to take on a referential interpretation.

The other phenomenon involving V>VM structure that is commonly dealt with by means of an *ad hoc* operator is the so-called existential (or evidential) 'aspect'. This turns out under the main predication approach, as its prosody in any case suggests, to be nothing other than focus on the tensed verb. Since tense-carrying and otherwise virtually semantically empty auxiliaries like *fog* 'will' appear as the focus in such constructions, it seems that this corresponds to narrow focus on tense itself. In line with the analysis of tense taken from Kempson *et al.* (2000), this produces a reading that asserts no more than the existence of the eventuality at a temporal anchor point. This is made pragmatically relevant by the particular usage of asserting that something is 'always possible' on the grounds that it has happened before or is to happen. Without the appropriate notion of narrow focus on tense, one is forced to encode some or all of this information in the construction via some

technical means like an 'EXIST operator' (as in Piñón to appear). The analysis of this phenomenon therefore once again emphasises that consideration of inferred meaning is essential to the analysis of what is encoded in linguistic structure and shows how this allows for much more parsimonious accounts of structural encoding.

Finally, Chapter 7 deals with the issue of why the negative particle *nem* seems to be in the immediately pre-verbal position (causing postposing of VMs) when it expresses sentential negation, yet proves able to co-occur pre-verbally with focused expressions (including narrowly focused VMs) when it performs constituent negation. These different behaviours are shown to follow from a single, maximally simple assumption: that *nem* corresponds to a negative operator that always operates locally, over a single predicate. Constituent negation is negation of a focal main predicate, and is therefore expected to involve *nem* occurring pre-verbally alongside a focused expression. Sentential negation, with *nem* immediately to left of the tensed verb, is analysed as negation of tense. Just as narrow focus on tense produces a 'pure existence' reading, local negation of tense simply produces the reading that the eventuality does not exist (i.e. it does not occur), thus lending further support to Kempson *et al.*'s (2000) proposal to separate off all but the 'temporal anchor' function of tense into an independent system of temporal logic. The assumption of consistently local negation also successfully predicts the virtual impossibility of post-verbal negation. While this is not ruled out by the technical side of the analysis, it would be pragmatically very odd. On this basis, the extreme marginality of any example containing post-verbal negation is predicted, but so are the kinds of context that can help to make a reading accessible.

The proposed analysis of Hungarian thus constitutes a clear case for the advantages of a dynamic, inference-based approach to the structure and interpretation of natural language—and, within this, for the possibility of radical underspecification of encoded meaning. On the basis of a single encoded procedure, a wide range of data is accounted for and numerous matters of detail predicted. In terms of theoretical parsimony, this has obvious advantages over syntactic approaches that posit large numbers of both semantic and syntactic entities in order to account for each observed form-meaning correspondence.

Despite the fears of the structuralist linguists, which continue to influence the assumptions of modern mainstream generative linguistics, approaching linguistic structure in terms of the meanings it relates to, and explicitly taking into consideration the inferential and contextual elements in these, does not lead into a morass of unanalysable and idiosyncratic data, nor inevitably to the inability to

make more than *ad hoc* and unexplanatory declarations about coincidences of form and meaning. One of the particularly striking things about the procedure that I have identified as being at the heart of a surprisingly wide range of phenomena in Hungarian is its 'fundamental' nature, in the context of semantic theory: the notion of creating a propositional meaning being about as basic a component of semantics as could be imagined. That matters of considerable complexity and superficial diversity can be shown to follow predictably from such a fundamental process is an indication of how far from *ad hoc* description this approach can be.

Indeed, the production of complex effects from the interaction of a very few, very simple elements is a feature of the analysis. Thus, the basic notion of main predication is complemented by the simplest possible analysis of the negative particle *nem*: it simply negates the predicate to its right. The contribution of tense is also stripped down to its simplest possible form within the representation of the asserted content of an eventuality, as a simple anchor point or index. The ability to produce complex and diverse effects on the basis of maximally simple encoded information and independently necessary inferential abilities has clear implications for wider issues of concern to linguists, such as learnability.

This also brings up the question of universality. The particular analysis presented in this thesis is not intended to be directly applicable beyond Hungarian. One feature of a dynamic, inferential approach, in which knowledge of language is characterised in terms of procedures for achieving an interpretation (rather than as abstractly represented declarative information on how to relate static syntactic structures to to static semantic structures) is that the means of triggering particular interpretive effects are in principle many and various. The analysis of Hungarian developed here therefore makes no predictions that other languages should look the same. To the extent that it makes any prediction at all about how other languages might work, identifying these would be highly complicated, owing to the many kinds of resources that languages employ to trigger different interpretations, whether syntactic, morphological or phonological, all of which may interact in subtle ways. Furthermore, one cannot discount the possibility of the 'grammaticalisation' of certain phenomena even in a radically dynamic approach, effectively creating rule-based behaviour out of what was previous the result of inference. At the syntactic level, this might be a matter of changing procedural parsing information in the lexicon, or might even involve changes at levels of the fine detail of lexically encoded semantic material, which could cause visible structural effects via chains of inference.

On the other hand, one would expect to see other languages employing similar strategies to Hungarian, given the apparent fruitfulness of a single, very basic encoded procedure in this language. Certainly, a number of interesting comparisons do exist cross-linguistically, not only in the basic matter of discourse-related word order phenomena (as well as obvious cases like Basque, Turkish or Finnish, areally and typologically quite removed cases like Papago/Tohono O'odham, as described by Payne 1987, appear to show striking similarities, once the descriptive preferences of different linguists are picked through) but also in superficially unexpected interactions between different elements, such as foci and many VM-type elements, as Jo (1995) points out. Indeed, a number of significant-looking parallels arise in the course of this thesis between Hungarian and English, despite the stark typological contrast between the two. Structural universals do of course potentially offer an alternative form of explanation for these cross-linguistic similarities, but, as Culicover (1998) suggests, the degree of parameterisation necessary to capture the detail of cross-linguistic variation in many cases might reduce the proposed structures to being just about equally learnable or unlearnable with or without any presumed universal basis. An approach that recognises from the outset the possibility of using quite widely varying tools to achieve similar goals therefore seems to be preferable even from this perspective, and this is the case with any approach that gives inference a significant role.

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